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CONTENTS.

Page

SOME NEGLECTED ASPECTS OF GEOGRAPHY. Address to the Geographical Association. Professor L. Dudley Stamp 1

NOTE ON THE APPLICATION OF AIR PHOTOGRAPHY TO THE AGRICULTURAL GEOGRAPHY OF NORTH-WEST CARDIGANSHIRE. G. Melvyn Howe .. 15

SEVEN LAMPS OF GEOGRAPHY. An Appreciation of the Teaching of Sir Halford J. Mackinder. Edmund W. Gilbert 21

CULTURAL HERITAGE OF BAS LANGUEDOC, FRANCE. Swanzie Agnew .. 44

GEOGRAPHICAL AND HISTORICAL FACTORS ASSOCIATED WITH THE INDUSTRIES AND OCCUPATIONS OF CHESTER. J. T. Scott 51

CORRESPONDENCE 55

GEOGRAPHICAL ASSOCIATION 57

REVIEWS OF BOOKS 63

REVIEWS OF FILM-STRIPS 67

GEOGRAPHICAL ARTICLES IN MAGAZINES RECEIVED 68–70

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SOME NEGLECTED ASPECTS OF GEOGRAPHY

ADDRESS TO THE GEOGRAPHICAL ASSOCIATION

Professor L. DUDLEY STAMP, C.B.E.,
President, 1950

ALL branches of knowledge undergo a natural process of growth and evolution. The subject matter, scope and treatment, change from decade to decade and from century to century. Geography is no exception, indeed it is a supreme example of a subject which has ceaselessly evolved and altered. As soon as one admits this natural phenomenon of growth there are certain implications. We ourselves are involved : we must move too, otherwise it is easy for our reading and our thinking to be out-of-date, and fatally easy for our teaching to be so out-of-date as to be erroneous. Too often our ideas become crystallized in student days : we cling to beliefs as well as to books which we ourselves used and respected when we were first studying the subject seriously. It is well that we should periodically pause and take stock of the position.

There was a time when geography was, literally, a " writing about the earth." The classical and mediaeval geographers were indeed cosmographers and it was the very breadth of their interests and their knowledge which rendered them fit counsellors to princes, kings and governors. The story of how specialist disciplines were gradually split off and carved for themselves fields of work within the former all-embracing geography is too familiar to need repetition. It does, however, help us to understand the position a century ago when the teaching of geography had become the teaching of lists of capes and bays, of countries, towns and products and when the live field for geography lay in exploration of lands still unknown to the white man. Exploration at this period has, it will be remembered, been defined as the first discovery of new lands by a white man, preferably an Englishman, and only really authentic if sponsored by the Royal Geographical Society. The attempt to discover a pattern in the seemingly unrelated mass of facts, to see the world as a whole of which the new discoveries immediately formed part, is the genesis of modern geography as we understand it. Hugh Robert Mill, when he entitled his elementary text-book of physical geography *The Realm of Nature*, sought to emphasize and define this unity of the geographical environment and later essayed the more difficult task of bringing human aspects into the unified pattern of cause and effect. The evolution of the new " causal geography "—hateful word—faced difficulties which in this day we may find it impossible to visualise. We should pay homage to the men of vision within the Royal Geographical Society who secured recognition for the reborn subject by the University of Oxford. Especially on this occasion, we should recall the small band of pioneers who founded the Geographical Association in 1896. Two aspects of the evolution of our subject call for special comment. One is the rise of regionalism exemplified on a global basis by A. J. Herbertson's immortal paper on the regions of the world delivered to the Royal Geographical Society in 1905, and on a local basis by H. R. Mill's pioneer attempt at a regional description of a fragment of Sussex. The other is the development of the concept of determinism epitomised by such phrases as " geographical control " and " climatic control." In its most extreme form the control of the geographical factors on the life of man was held to be so strong that, if history happened all over again, its course would be the same. Determinism had the beneficial result of focussing attention on the physical factors of causation : it had the unhappy result of creating or widening a gulf between geographers and historians. The geographer was threatened with the isolation of the fanatic. A revolt was inevitable but to-day the pendulum seems to have swung too far in the opposite direction. To be labelled a ' determinist ' to-day is a serious charge : there are geographers who will read through books with a blue pencil enjoying a sort of witch hunt in the chase for evidence of the heresy of determinism.

The reaction against determinism has had at least two serious consequences. I am not certain whether P. W. Bryan has received the credit due to him for his book *Man's Adaptation of Nature.* However much we may individually disagree with him and however much others may have misrepresented him, his is the credit for setting firmly on record the concept of the ' cultural landscape.' In throwing aside geographical control by the physical factors of the environment we face the temptation of throwing over the study of the physical factors themselves—I need not repeat what my colleague Professor Wooldridge has said about taking the *ge* out of geography. To my mind the danger remains : many students are attracted by this short cut to geography : the joy of argument and debate without the drudgery of fact finding. One particularly dangerous aspect of this geographical short cut is the making of facile correlations. We find, comparing maps of Britain, that (at least before World War II) grassland farming was associated with scattered farms ; arable farming with villages or nucleated settlements. Thus we could ' correlate ' a pattern of human settlement with a type of farming and define a cultural landscape. As a statement of facts at the time the correlation was true but the grassland farming areas had formerly been cultivated. What then ? It is only necessary to whisper ' water supply ' to get nearer the real causation : it is only necessary to recognise the influence of geology and climate on water supply to get right back to the real primary causes. Again and again we are brought right back to the physical factors. A more modern danger is the attractiveness of " social studies " in place of geography, history and civics. Theoretically this may be sound enough ; in practice the master minds able to balance and integrate such a range of material are too rare and the result is a foundationless smattering of each : a house built on sand. It is interesting to see the reaction *against* social studies in America at a time when the swing is towards these studies in this country. I suggest the real answer to this challenge is in the hands of the geographers—who need to overhaul some of the neglected aspects of their subject.

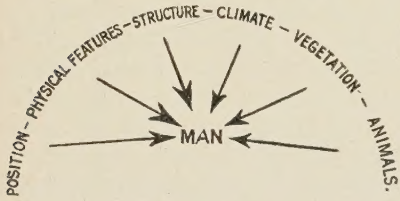
POSITION - PHYSICAL FEATURES - STRUCTURE - CLIMATE - VEGETATION - ANIMALS.
MAN

Fig. 1.

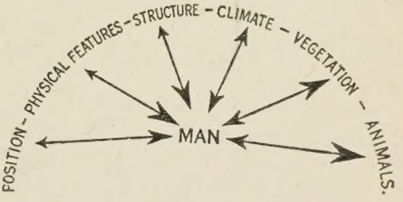
POSITION - PHYSICAL FEATURES - STRUCTURE - CLIMATE - VEGETATION - ANIMALS.
MAN

Fig. 2.

Fig. 1.—Determinism represented diagrammatically.
Fig. 2.—Modified determinism.

I have always regarded definitions of subjects and delimitations of spheres of work as arid exercises, but perhaps a restatement of the present position is desirable. I regard geography as essentially the study of the earth as the home of man—that is, as human ecology. The study of plants and animals living and growing in their varied habitats involves every phase of the action and reaction between the individual or the community and the environment, whether the latter is ‘ natural ’ or ‘ artificial.’ So it is with human ecology. I am sure that the right approach for the geographer is to study and understand the environment—analytically or separated into factors and also regarded synthetically as a whole. Each factor has its influence on the life of man. This, of course, is determinism : our need is to remember and study the reciprocal influence of man on his environment and specifically on each factor of the environment. Our right approach, therefore, may be called modified determinism. The influence of the environment is most marked in the case of ‘ primitive ’ peoples and where such factors as extreme cold, aridity or elevation are so dominant that even the exercise of the best skills devised by modern man avail but little. Environmental influence is at its minimum in favourable conditions of climate and relief where man has achieved a highly organised society and a high standard of living. Not only has man there acquired the power to counteract many of the environmental influences, but he has also earned a wide choice of action within a wide possible range. The two extremes may be represented by the two simple and well-known diagrams (Figs. 1 and 2).

Before we suggest that there are certain aspects of our subject which we tend to neglect we must face fairly and squarely a lasting problem. How soon dare we introduce into our teaching—especially at the High School level—the findings of research workers knowing that there is always the possibility that their results may not be confirmed by later investigations ? School teaching must inevitably lag some way—or should I say some time—behind ; the question is how far behind. We are all familiar with some extreme cases of out-of-date information. About 1930 there was a geography text-book still very widely used in some schools (unfortunately, especially in our colonies), which, very good when it was first published in 1864, still stated in its 122nd printing that " the turnpike roads of England are generally in good repair." Examiners of school certificate papers at least until a very few years ago will recall how often the world's rubber supplies were recorded as coming from the Brazilian forests. Those whose education is unimpeachably sound in other directions are often woefully ignorant where any matters approaching geology are concerned. A few weeks ago, I was horrified to hear a well-known broadcaster in Children's Hour, enunciate that hoary old chestnut that volcanoes are due to molten rock being squeezed out of the white hot *molten interior* of the earth. True he corrected the statement at my request on a later occasion, but I fear much damage was done. Such cases are clear enough but, as a biologist said to me recently, " When are you geologists and geographers going to make up your minds about continental drift ? " Do we or do we not introduce Wegener's concepts into school text-books ? The weight of evidence is now against the simple idea that the continents have drifted apart, that South America used to fit comfortably into the Gulf of Guinea in Africa and so on ; but the deformation of the earth's crust with Alpine-type folding demands continental drift in a marked degree. How soon can we fit the discoveries of Pettersson's deep sea floor exploration into the general scheme ? On the whole I think the teacher must introduce these juicy morsels of exciting modern research by word of mouth rather than that they should be crystallised too early in the sanctity of the printed word. Once we see something in print, even if it is only in the worst of the Sunday papers, it is difficult to shake belief . . . " But I saw it in the paper . . . "

Some years ago—in 1931 to be exact—I was severely criticised by at least one reviewer (incidentally he was an F.R.S.) for introducing into a book for Higher School Certificate level, a statement of the Polar Front hypothesis, then comparatively recently introduced by the Norwegian school of meteorologists. Now that we have grown accustomed to explain most climatic phenomena in terms of " fronts " this criticism seems strange. But we face a new problem. Do we now throw over all the time-honoured material about pressure and winds in our texts and deal essentially with movements of air masses ? One fellow professor of mine advised me, " Certainly not—it's too early," but two others said, " Of course we must—the other stuff is completely outmoded." In a text-book for general use my own feeling is for a somewhat gradual change : a statement of the older view and then in as simple language as possible the trend of modern research. Actually, most of the old ideas are tough ; they do not die easily or quickly. On theoretical grounds the ancient Greeks decided the world must be divisible into Torrid, Temperate and Frigid Zones. That is why, after some 2,000 years or more, the most intemperate climates in the world are still called 'Temperate' because they lie in the Greek theorists' Temperate Zones.

This problem of research and teaching is not by any means entirely in the realm of physical geography. As an outside observer I am immensely intrigued by the carefully reasoned arguments of Professor Arthur Davies that the North American continent was discovered by Portuguese sailors some years before its supposed "discovery" by Columbus. I know many of my colleagues are sceptical. How soon we should push Columbus out of his pride of place in the text books I do not know; again my preference is for a note mentioning the newer researches and what they seem to show.

In our endeavours to be up-to-date there is a trap into which it is easy to fall and that is to forecast. When, for example, a country has been expanding its agricultural production over many years, it is easy and natural to presume a continued expansion. But look at wheat in Australia and Canada and wool in Australia and New Zealand and be warned.

Let us now turn to some specific weak points in our study and teaching. First and foremost I put our criminal neglect of the globe. We have spent immense energy in the inherently impossible task of presenting the surface of a sphere as a flat sheet of paper when we can have, use and constantly study a model of our earth in the form of a globe. Once again we have become so wedded to the printed word, to the book, that we neglect the real opportunity to hand. Our ancestors did not make this mistake: every well-appointed private library had a globe and Victorian children are depicted (I believe correctly) gathering round their mother's knee to have their first geography lessons from the globe. I am not quite certain that neo-Georgian mothers would have either the same confidence or competence. Yet, in this air age, the globe has become vital. Air transport has moved with incredible swiftness. A few years ago we were looking upon the Shetlands, Faroes, Iceland, Greenland and Labrador as essential stepping-stones on the projected air route to America. Now non-stop hops of 2,000 or 3,000 miles are everyday happenings and we get our best picture of space relationships by a piece of string and a globe. When lecturing to branches of the Geographical Association and to schools I not infrequently embarrass the unfortunate geography master by demanding a globe: to be fair, one is often discovered and triumphantly produced, but time does not always allow for the thick coating of dust to be removed. Not only does a globe correct our ideas of shape, direction and distance but it underlines the essential continuity of the earth's surface. Any global map disrupts the surface somewhere and so to us in Britain America is to the west, Japan to the east. To American children, with the Americas in the centre of the world map, Europe is to the east, but Japan is to the west. It is appropriate that the opening of the new Headquarters of the Geographical Association at Sheffield should have been marked by the presentation by our publishers of a globe to adorn the Library—and we may hope, to be really used. I see no reason why every pupil in every school should not have a globe. Even the tiny pencil-sharpener type has its uses.

With the use of the globe comes also the need to look at maps which depart from the convention that the north must be set at the top. Polar maps, maps of the ocean, maps with London or New York or Alaska as centres—these are what we need more and more.

I have never been convinced that there is a need to teach geology in schools as a separate subject, but I am more than ever certain that a sound grounding in elementary physical geology is vital to a proper understanding of geography. It must be an integral part, not a separate entity. Too often the modicum of geology which is introduced remains an undigested fragment devoid of reality and relevance. I am certain that many schoolboys who can talk and write about folds and faults would fail to recognise a simple anticline in the rocks of the Cornish cliffs on their summer holiday. I am sure that many university students who write learnedly about schists and gneisses or Keuper marls and Bunter sandstones would fail utterly to recognise any of these in the field. This, of course, amounts to a plea for at least *some* field work and for a teaching collection in every school. There are two widespread lapses in both book work and map work. The one is a failure to understand drift deposits and 'drift' maps in contradistinction to solid deposits and 'solid' maps. The other is the widespread confusion between rocks and soils embodied in such statements as 'the London Clay *is* a heavy soil.' Soils may partake of many of the physical characters of the rocks which underly them and which may have contributed their mineral constituents : other soils may be totally different in character from the underlying rocks. Further, a geological map, even a drift map, is *not* a soil map. What the geologist rightly records and maps as boulder clay may yield soils ranging from light, easily worked calcareous loams to the most intractable of heavy clay soils.

I am sometimes worried about our very artificial natural regions. We seek to find units—I refer to minor natural regions—exhibiting a homogeneity of environmental characters. We find relief—the form of the ground—an obvious and easily observable character and it is natural to consider a plain or a plateau as a unit or separate geographical region. Frequently, however, it does not constitute a unit in any other sense. There are occasions when a geographer's region may form a *pays* known locally ; it may even be an ethnographic region or an administrative unit or have a community of social and political interests but such cases are the exception rather than the rule. On the other hand a river basin is both a clearly defined natural unit and one which frequently has also a unity of political and economic interests. There was a time when the regional geography of England was taught on a basis of river basins and I well recall my school geography text which—they had high standards in those days—had *coloured* maps of all the main river basins. At the time it seemed artificial thus to cut across county loyalties but the control of water has become so vital that catchment areas in this country are now important administrative units. In a wider sphere, it has been said that the future of the underdeveloped lands of the tropics depends primarily on control of water—or irrigation where there is an overall deficiency and also to combat seasonal deficiency; as an insurance against bad rainfall years in better watered areas, and on flood control where the supply is excessive. This point of view is now being appreciated in Africa—I do not refer only to the Nile Basin now being considered at least hydrologically as one unit—but to the whole continent. Outside the tropics we think immediately of the Tennessee Valley and the treatment of the basin as a unit which underlay the success of the T.V.A. It is not surprising to hear of the projects for the Damodar Valley Authority in India, or to realise the part played by the Murray-Darling Basin problems in Australia in bringing the former separate states together. Much of the soil erosion trouble in the world is due to ignorance, unwitting or deliberate, of the behaviour of water in the formation of river basins. The apparently obvious mistake, at least to a geographer, of cutting up virgin lands into square blocks, ignoring drainage, is still being made. It was one of the mistakes made in the East African Groundnut Scheme, it is still one of the mistakes being made in the forested areas of Canada. Certainly we neglect a study of river basins.

In our consideration of climate I think we still rely too much on averages. When we deal with the great climatic regions of the world we ought always to introduce word-pictures of the weather from day to day through the seasons: it is not enough just to talk about the wet season or the dry season, and so on. Variation from year to year is so important it must always be emphasized. The keeping of weather records at school is an immensely valuable exercise. The meteorologist is interested in records of absolute maxima and minima, in exceptional falls of rain—in fact the unusual. I used to think this rather outside the geographer's interest until I realized how an exceptional cold spell could wipe out trees and shrubs which had survived a dozen years or more and how the bulk of normal erosion might take place as a result of one 'exceptional' storm. Geographers in this country have rather neglected too, the significance of snow: duration of snow cover and blocking of roads have a powerful influence on transport as well as land use. We are only beginning to learn something about the problems of permafrost—yet a fifth of the earth's surface has a permanently frozen subsoil.

The major climatic regions of the world are actually climatic-vegetation regions. It is not altogether the geographer's fault if his descriptions of natural vegetation tend to be vague: it is difficult to interest botanists, even leading ecologists, in primary vegetation survey and description. It was only after I had worked some years in India and Burma attempting to describe monsoon forests, dry forests, acacia scrub forests and scrubland that I went to Africa and found precisely the same vegetation types under entirely different names—savanna-forests, savanna, bush, veld, orchard veld and so on. I tried, unsuccessfully, to introduce a scheme of vegetation formulae in order to secure a greater accuracy of description and I do not think the problem is yet solved. At least in our work we should avoid such vague terms as " jungle " and try in teaching to have an adequate supply of pictures.

In the scheme of natural factors making up the environmental complex the last is animal life. In one sense we are apt to regard here the control of man over his environment as absolute. We can just kill off the wild animals we don't like. The truth is, of course, that the larger the animal the more easily can this be done. It is the little fellows which defeat us. It has been said—quite recently and with much truth—that the tsetse fly is still the real ruler of Africa. Malaria is still a real killer and further, like hookworm, a debilitating disease which saps the energy and keeps under-developed man under-developed. As fast as we secure mastery over one pest or disease, another seems to arise and attack in great strength. No plague the world has ever known killed so many human beings as the influenza epidemic of 1918–19. The geography of pests and diseases is a very big field in which much work remains to be done[1] but it is time that at least some aspects were brought into our ordinary geographical work.

So far we have been dealing with the environmental complex. What about the study of man in relationship to his home on earth ? First and foremost we must not lose the sense of continuity between past, present and future. Much as I dislike the pretentiousness of the phrase, it is " the sequence of human occupancy " which matters. This is geography's real link with history on the one hand and, on the other, with the practical affairs of a world which must look to and plan for the future. Just as there are dangers in facile correlations which ignore the environmental factors, so there are dangers in correlations which look only at the present and ignore the past. We may explain the dominance of arable farming in East Anglia in terms of relief, soil, rainfall and temperature, but the intricate pattern of field, farm, village and town is explicable only in terms of its gradual evolution through the centuries.

Let us look first at some of the aspects of human geography on a global basis and then on a regional basis.

In the course of the past thirty years I have been responsible for writing a number of geographical text-books. I usually like to get away to my Cornish cottage, or get on board a ship and then, through long weeks or months of thought having already written the book in my head, I can put it down on paper. Many friends ask how can one possibly write thus away from libraries and works of reference. For

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[1] An important summary of the present state of knowledge was published in the *Geographical Review*, 1950, pp. 9–41, and the International Geographical Union has a Commission dealing with the subject.

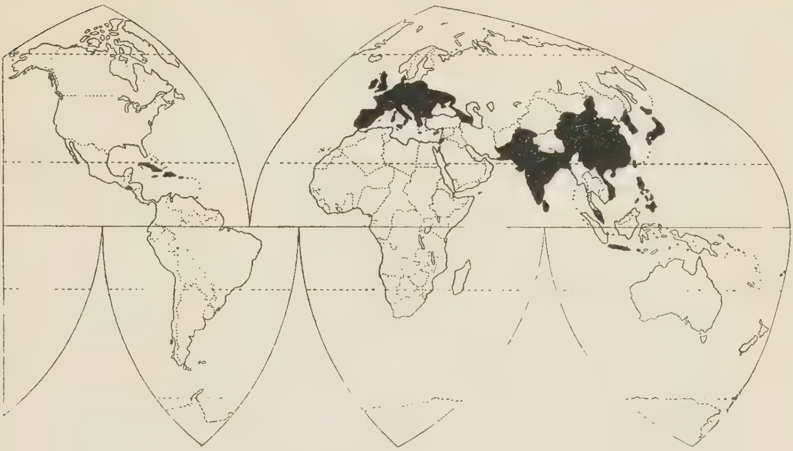


Fig. 3.—Population Density, 1950. All areas shown in black have a density of population greater than world average.

those erudite tomes intended for the University student or for a wide public their observation is valid, but in the case of a school text my answer is always that I should hesitate to put down and expect a schoolboy to remember anything which I, with years of teaching and reading, do not naturally carry in my head. Of course afterwards, every point must be checked to see that my memory is not at fault and that what I have written is accurate. A good atlas, a Statesman's Yearbook and a Whitaker are kept by my side, but I have found this procedure a good discipline. How much do I remember—and therefore, how much can I expect my reader to remember—about man on the earth ? I am not good at remembering figures : they must be reduced to a minimum. I do think it is useful, however, to think of there being about 2,350,000,000 human beings on the earth's surface in 1950 and that the number is being increased by about 20,000,000 net per year. One can turn the latter figure into all sorts of interesting and telling points, such as the world adding to itself a population equal to the whole of that of Canada every eight months, of Australia every five months, and so on. Then I like to think of each person in the world having a share of some 14 or 15 acres in the existing land surface. That seems to me better than the fictitious idea of an even spread giving an average world density of some 40 or 42 persons per square mile. If I think of one-fifth of the earth's surface being too cold for permanent settlement, another fifth too arid and another fifth too elevated or rugged and some more too barren and rocky I get to the 30 per cent. of Professor Fawcett's habitable globe. So each person in the world has a share of four to five acres of 'habitable' land—remembering that figure includes such areas as the Amazon basin at present virtually uninhabited. The density of population in the United States approximates to world average, so our American colleagues have 14 or 15 acres a head to play with In Great Britain we have

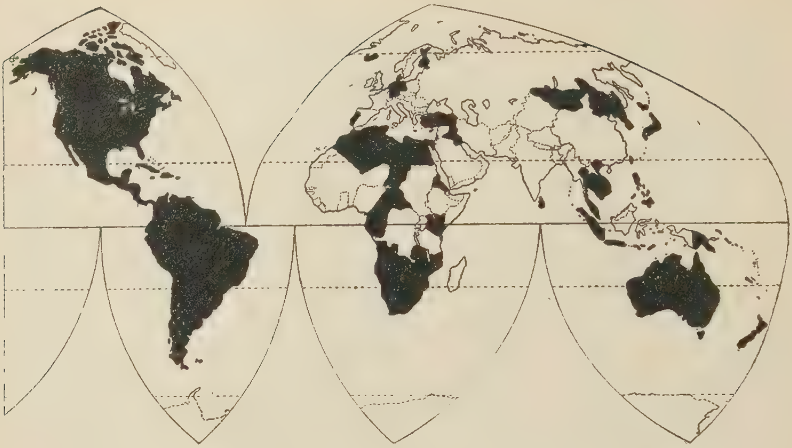


Fig. 4.—Map of the World showing rate of population increase, 1940–48. All areas in black show increases greater than world average.

$1\frac{1}{8}$ acres per head (in England and Wales considerably less than 1 acre) of land of all types—that is why land is precious and why we are so concerned with land use planning. This gives us a world picture of pressure on land, shown in its simplest form in the accompanying world map (Fig. 3).

I find it useful to remember that the acreage of ploughed or cropped land in the world is rather greater than the number of people. Cutting out the problem of equating grassland and rough grazing, the world uses about $1\frac{1}{8}$ or $1\frac{1}{4}$ acres of cropped land per head to feed itself. We in England and Wales have about $\frac{1}{2}$ acre of improved farm land, i.e. crops *and* grass. This brings home the problem.

There are other aspects of world population we need to bring in. One is the increasing pressure of people on land because population increases at a geometrical rate ; food-land at best only in arithmetical Despite extension of area and improvement in yields there is less farm land per head and less food per head than a few decades ago.

Whilst these global views are interesting, we know only too well that the world is far from being a political or an economic unit and that, broadly, each country must work out its own salvation—must use its own resources to best advantage. We must study the human geography of each country.

When I am revising my text books I find there is always one thing out-of-date—the population of the country and the population of its towns. I make my alterations according to the latest census or latest estimate but I am not certain of the real usefulness of the proceeding. I do not remember the figures : I am sure the readers do not. The problem, what are the essential facts to present, seems to me to need much more thought. Pressure on land resources compared with world standards is important and perhaps my use of acres per head is the

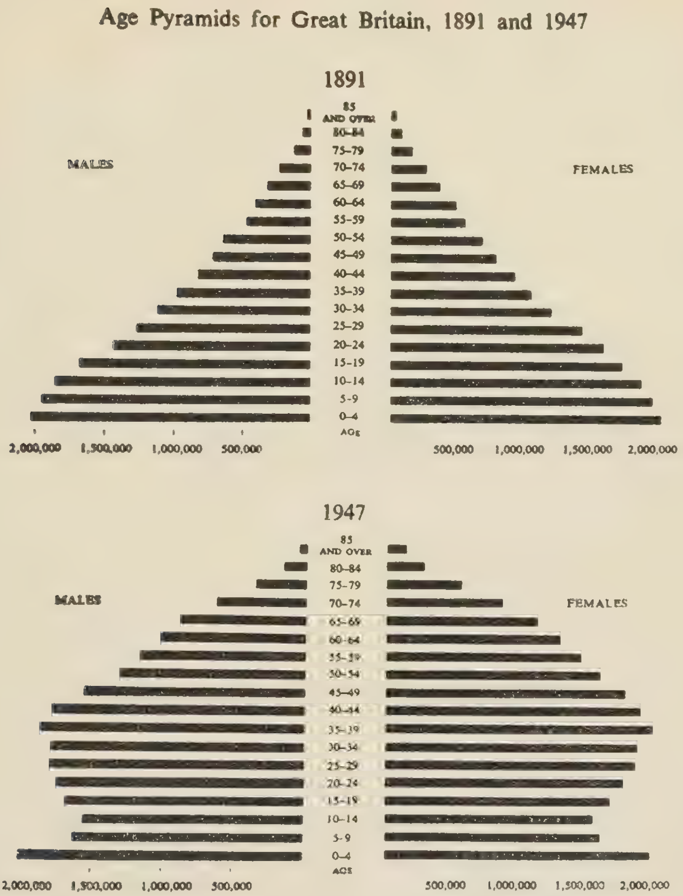


Fig. 5.—Diagram showing age composition of the population.

best. With regard to changes we need a measure of growth greater or less than world standards. The map here reproduced (Fig. 4) is particularly instructive : it certainly upsets our current ideas of where world population increase is most rapid. It is some appreciation of what is happening to the population that we need—the dynamic view of rural depopulation and urban expansion. Geographers rely greatly on diagrams and I think we might make more use of the demographers " fir-tree " diagrams (Fig. 5) showing age composition of the population Such diagrams bring out the contrasts between the healthy well-fed people of Britain, with so many old people and a comparatively small number of children and the prolific but still under-nourished and under-doctored people of, say, Mexico with very numerous children but few old people.

This doesn't solve our problem of how to treat the towns. Perhaps the general concept of million cities, large towns and cities (100,000 to

1,000,000) and smaller towns (up to 100,000) is really as far as we should try and go, coupling this classification with the concept of rapidity or otherwise of growth.

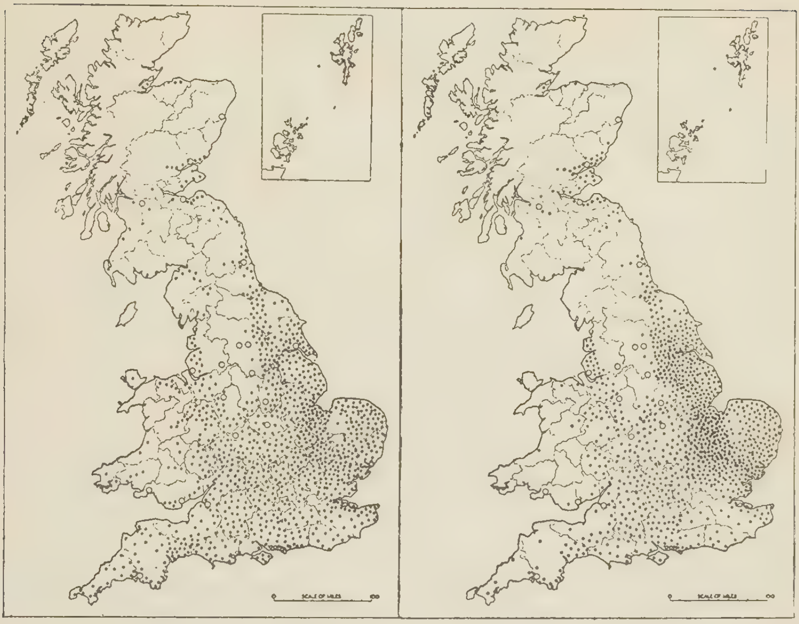
So much for the demographic aspects of human geography. How much should we include of race, religion, language, social and political organisation, 'standard of living,' habits, homes and customs? We do try and present a reasonable modicum of these aspects: most teachers select with care pictures which tell much of the everyday life of the people. The danger is that the photographer (and the cinematographer) is always attracted by the unusual: it is nearly always easier to get a picture of a coronation which happens once in a lifetime than of an ordinary family having an ordinary meal in an ordinary home.

The activities of man form the subject matter of Economic Geography and Commercial Geography. There at once we find a remarkable no-man's land. I venture to suggest that no one has yet attempted to write an Economic Geography which would be acceptable as a serious work both to theoretical economists and to geographers. This was the burden of my brother's Presidential Address to this Association in 1937; no one has yet followed up his lead. I have no doubt that much so-called 'economic geography' is puerile in the extreme to the trained economist just as the elaborate superstructures built by my economic colleagues appear to me useless fabrications of fancy because they lack even an elementary foundation of fact which would pass muster with a geographer soundly trained on the scientific side.

Apart from this great gap there are some specific neglected aspects. In connection with primary production I think we have too long been obsessed by dot maps of distribution of crops—whether in acreages or yields—and livestock. In my book, *The Land of Britain, Its Use and Misuse*, I used, I believe for the first time, a new type of dot map for Great Britain which I think might have a wider use. They may be called "mille-maps" because there are a thousand dots on each map. Each dot thus represents 0·1 per cent. of the total production, acreage or number; at the same time each dot has a numerical value. By *these* maps one can compare changes in areal distribution from one period to another independently of totals, e.g. cultivation of wheat in 1874 and 1938 (Fig. 6).

We are also obsessed by the—often doubtful—statistics from which dot maps are constructed. We get no picture of farms, farming or farmers: no picture of methods of farming, intensity of production or the daily life of the farmer. When we get down to these aspects we receive some shocks. For example, I had occasion recently to note that the average full-time English farm in acreage of crops and grass is larger than its American counterpart and, of course, more fully mechanised.

It is gradually becoming more possible to get an overall picture of land use in the principal countries of the world. The proportion cultivated, the proportion in rough grazing or range land, the proportion in forest, the proportion in unproductive mountain or desert—



Wheat 1874 Wheat 1938

Fig. 6.—Examples of mille-maps.

these give us a valuable overall view. Where we can couple this with acre-yields of farm crops we begin to get a picture of intensity of production. For many countries, figures are available for the percentage of the working population engaged in food production. This seems to me an index which we have neglected as indicating the emphasis on farming compared with other occupations—it has some surprises but underlines Britain's unique position in the world.

Forestry and timber production are scantily treated by many geographical books. We fail to distinguish (a) natural forests unworked or little worked ; (b) natural forests being worked systematically for the first time ; (c) cut over areas ; (d) plantation areas. Some elementary ideas of forest rotations, trees as crops and systems of management and exploitation seem needed and the concept of the growth : cut ratio is quite simple but overlooked.

The story of mining presents many traps for the geographer because of the rapidity with which the picture can change. Here again the mode of occurrence of the chief economic minerals—the physical background—provides the clue and explains the relative stability of, say, a coal-mining area compared with one producing placer gold or lode silver and copper. The disposition of the world's minerals tends to redress the balance amongst nations : so many of the most urgently needed minerals come from countries whose resources are otherwise poor. Accordingly a global view of mineral production, including oil, is a useful corrective to a study of climatic regions.

When we turn to manufacturing industries and trade, internal and foreign, we find ourselves beset with difficulties. We tend to place great reliance on that overworked word "important." With the changing value of money and exchange rates, comparisons either in the local currency or converted into sterling have come to have little meaning. When we *can* get the details the proportion of the population engaged in each main industry affords a surer guide. With some basic commodities such as coal, iron and steel, tonnage gives us a measure of change which is reliable, provided it is viewed against world standards. Production of mineral oil, for example, has little meaning unless seen against world totals with the spectacular jumps from year to year. A country's production shown as a percentage of world total is a particularly useful guide.

In some interesting ways the geographer's treatment of transport and communications has become divorced from reality. Our books and atlases are still mainly living in the railway age. Almost the first atlas to pay serious attention to roads appeared only in 1950. Our atlases have also been remarkably bad on railways : the routes commonly shown by the maze of equal-thickness lines are rarely those followed by any self-respecting train. Where inland waterways are concerned we tend to rest partly in the river and canal era : the relatively few cases where inland water transport is still really important are rarely emphasized sufficiently. There is admittedly difficulty in dealing with air transport because of rapid changes : here is where the travel agency can help more than the text book or atlas.

There may be those who will read this catalogue of neglected aspects of geography with something approaching despair. How can we, they will say, crowd so much more into our overloaded courses ? What I have suggested, however, are not so much additions as re-orientations. Then there is surely much pruning of dead wood needed : the disconnected and unrelated facts which are a legacy from Victorian times. Let us always ask ourselves the question : what is the relevance, the real importance of this or that statement, and we shall improve both our understanding and our teaching.

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A NOTE ON THE APPLICATION OF AIR PHOTOGRAPHY TO THE AGRICULTURAL GEOGRAPHY OF NORTH-WEST CARDIGANSHIRE

G. Melvyn Howe*

THE present paper offers an illustration of the application and utility of the photographic approach to agricultural geography. Using 250 vertical air photographs[1] of scale approximately 1 : 10,000 it was found possible to construct, in a relatively short time, a land-use map of north-western Cardiganshire showing the form of utilisation on a particular morning in May, 1946, in every field throughout an area of 100 square miles. The photographs were interpreted with the aid of a standard pocket stereoscope, the land use in every field identified and classified according to the scheme adopted by the Land Utilisation Survey of Great Britain, and the results represented cartographically on maps of scale 1 : 25,000.

For the benefit of those workers interested in the extraction of similar data from air photographs the stages by which the interpretation was made in this instance are set out below. Examples are there given of "land-use keys" that may be constructed to facilitate uniformity of interpretation when more than one person is engaged on the work.

Interpretation Stages

1. *Acquisition of Local Knowledge.* Information on surface features, drainage, climate, soils, natural vegetation, settlement, population, and agricultural practices was first obtained from existing literature and maps.

2. *Plotting and Indexing of Photographs.* The exact area covered by each of the air photographs used in the study was plotted on a key map of scale one-inch to one mile. The index number of each print was added.

3. *Determination of Photographic Scale.* The photographs used had been taken from an aircraft of the Royal Air Force. Approximate photographic scales were computed from information supplied with the

---

*Mr. Howe is a member of the staff of the Department of Geography at University College of Wales, Aberystwyth. Publication of his article has been made possible by a grant from the Press Board of the University of Wales to meet the cost of the half-tone illustrations. The Honorary Editor is glad to make acknowledgment of this assistance on behalf of the Association.

[1] The photographs were 7 in. × 9 in. prints taken on the morning of May 2nd, 1946. The large number of prints was necessary to give complete stereoscopic cover of the area of study.

photographs, the Representative Fraction being equal to the focal length of the camera used, divided by the altimeter height of the aircraft at the instant of photography. For a variety of reasons the altimeter reading may differ considerably from the distance between the camera and the centre point of a particular photograph. Hence if any measurements have to be made, the scale must be precisely found for each print concerned. This is effected by comparing the distance between two selected points on a print with the distance between the same two points on the six-inch map. The pairs of points chosen for this purpose should be at the same altitude and on the lowlands for which the scale is actually required, e.g., along river valleys or railway lines and not, for example, from mountain ridge to mountain ridge. The Representative Fractions so found varied between 1 : 9,800 and 1 : 10,800.

4. *Preliminary Examination of the Photographs.* The photographs were set out in the laboratory in their relative positions and a general view of the complete area was obtained. It was thus possible to study with the naked eye or magnifying glass the broad pattern of surface features, reliefs, drainage, land use, settlement and communications, in two dimensions. Spot heights and place names were added to the photographs in chinagraph pencil by referring to the appropriate O.S. maps. At this stage, reference was also made to the meteorological conditions prevailing at the actual time of photography and to the general weather conditions that had been experienced in the study area over the previous six months. In the case of the latter, particular attention was paid to temperature, rainfall, and sunshine figures so as to discover whether conditions had been such as to advance or retard crop growth when compared with the average year. Knowledge of the meteorological conditions at the time of photography was obtained since it might help explain certain shadow or haze effects on the photographs.

5. *Preliminary Stereoscopic Examination of the Photographs.* Each pair of photographs was studied stereoscopically with the aid of a standard folding stereoscope of the refraction or lens type[2]. Generalised land-use divisions were identified at this stage and tentative interpretation criteria evolved.

6. *Field Work and Stereoscopic Study in the Field.* The tentative identifications of land use made at the previous stage were checked in the field. Slight modifications were made to the criteria as a result, the revised interpretation criteria then being applied to three sample areas each of about one square mile, within the main area of study. Variations of photographic tone (i.e., shades of whiteness or blackness), photographic texture (i.e., the evenness or smoothness of tone), stereoscope appearance, shapes, shadows, associated features, and knowledge of local agricultural practice were the principal aids to the

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[2] Such stereoscopes consist of two matched lenses mounted on a support and separated by a distance of about 2½ in. corresponding to the usual distance between the eyes.

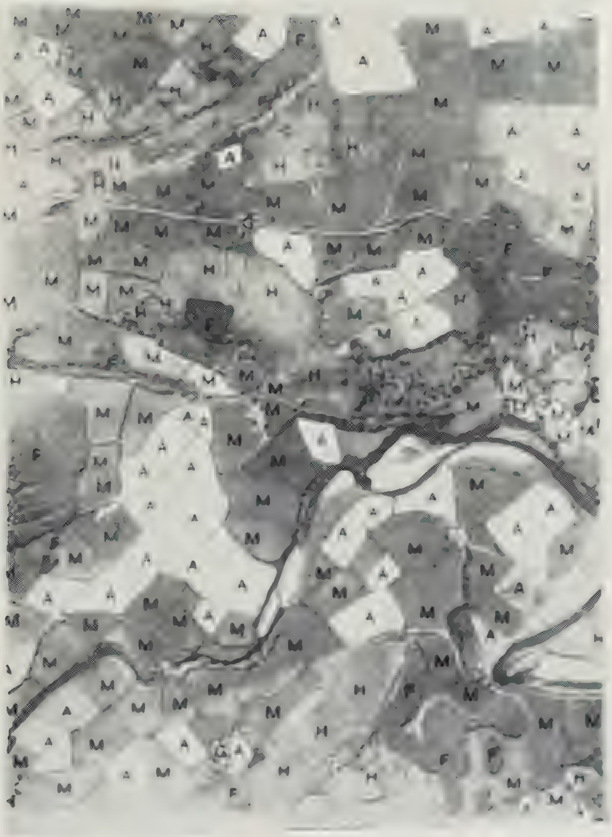

Fig. 1.

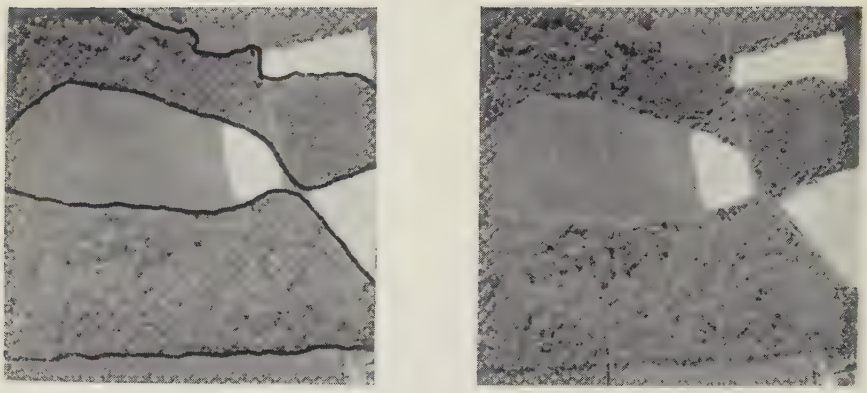

Fig. 2.—Deciduous Woodland.

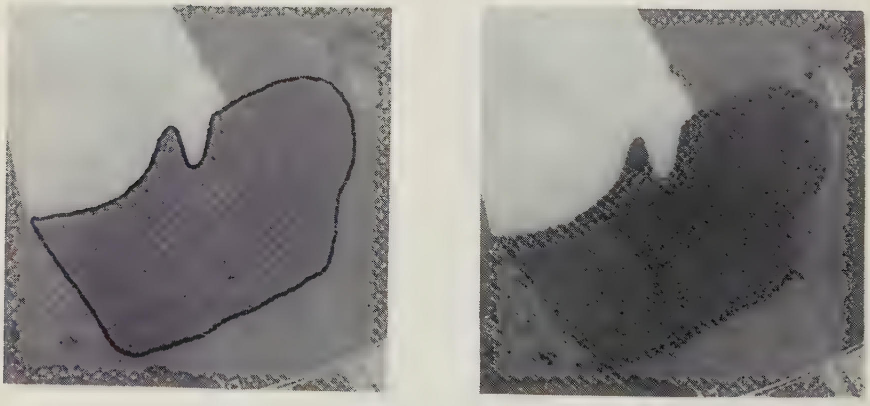

Fig. 3.—Coniferous Woodland (Plantations).

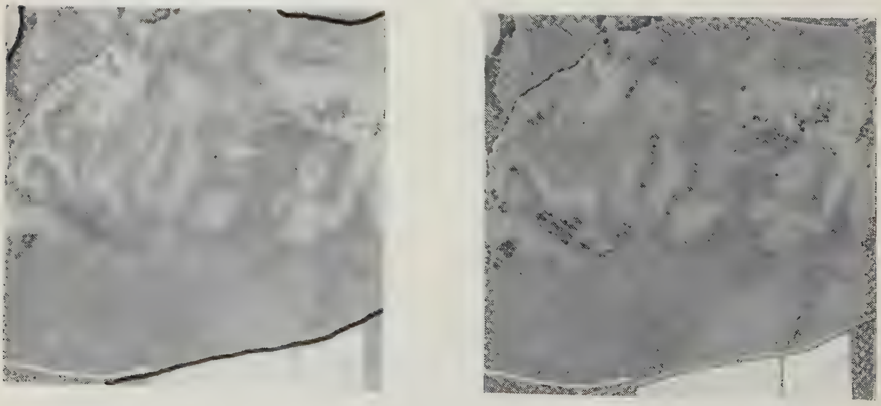

Fig. 4.—Heathland, Woodland and Rough Pasture.

interpretation of land use in the individual fields. The detailed interpretation of the three sample areas was then given a careful check in the field in order to correlate the actual landscape with its photographic appearance. The relation of land use to slope, altitude, and other physical factors, and to settlement and communications was also observed. Notes made during this stage were combined with notes and observations made in previous stages to draw up a list of interpretation criteria and to construct land-use keys. (See below).

7. *Post-Field-Work Stereoscopic Interpretation of the Air Photographs.* The detailed field work having been completed each pair of photographs was studied stereoscopically. Every field, enclosure, or open space was carefully examined and when the interpretation was completed, letters appropriate to the several utilisations were inserted on the photograph in coloured chinagraph pencil. (See Fig. 1). The land-use classification used was that adopted by the Land Utilisation Survey of Britain :—

F : Woodland.
M : Meadowland and Permanent Grass.
A : Arable or Tilled Land, Fallow, Rotation Grass, including leys under three years.
H : Heathland, Moorland and Rough Hill Pasture.
W : Yards, Mines, Cemeteries, Spoil Mounds, and all agriculturally unproductive land.
P : Ponds, Lakes, Reservoirs, etc.
G : Gardens, Allotments, Nurseries.

8. *Transfer of Interpretations to Map.* The various types of land use interpreted from the photographs were represented cartographically by a scheme of colours similar, once again, to that adopted by the Land Utilisation Survey. The colours were painted on maps of scale 1 : 25,000 which show individual field boundaries.

ADVANTAGES OF THE PHOTOGRAPHIC APPROACH

Within the study area it was found possible to recognise and identify about eight different types of land utilisation, (1) arable or tilled land, with roots or corn crops, (2) rough grazings, including heathland, moorland and rough hill pasture, (3) improved permanent pasture which had been down over three years, (4) rotation grass which had been down less than three years, (5) kitchen gardens, including allotments and nurseries, (6) deciduous woodland, (7) coniferous woodland, (8) land agriculturally unproductive. " Stereo-pairs " prepared to show the distinguishing features of each type of land use at the particular season of photography were used in conjunction with the other criteria that had been acquired to classify the remainder of the study area without detailed field work (stage 7).

Thirty-one non-specialist surveyors (school-children, school-teachers, university students, etc.) took from 1933-35 to complete the survey of this section of Cardiganshire for the Land Utilisation Survey of Great Britain. On the other hand, the writer working alone was able to determine by interpretation of the 250 photographs covering exactly the same area, the land use in every individual field and to represent the data cartographically, in but one fifth of the time taken by the surveyors of the Survey.

It is obvious that a certain amount of experience in photographic interpretation is essential before one can undertake a study such as has been described, yet, with instruction, this can be acquired comparatively quickly. Moreover, it is experience and knowledge of the particular subject to be studied from air photographs that is important, rather than knowledge of the technical aspects of air photography. Thus, for example, the military expert accustomed to identifying aircraft or shipping, or locating gun positions from air photographs is hardly qualified to interpret specialised aspects of geography.

Land-Use Keys

Summaries of the distinguishing photographic characteristics of each type of land utilisation are given below. The stereograms (Figs. 2 to 7), which may be viewed three-dimensionally with any standard stereoscope, illustrate the interpretation criteria, but some of the distinguishing features will not be so readily apparent in half-tone illustrations as in the original air photographs. It should be emphasized that these keys and stereograms apply only to west central Wales in late spring. Elsewhere a number of significant differences would appear, e.g., some arable fields might be green with autumn-sown corn.

Deciduous Woodland

Tone. Varies with individual tree species from medium to light grey; mottled.

Texture. An uneven and coarse stippling.

Stereoscopic Appearance. Heights appear exaggerated; surface generally irregular with individual tree crowns visible.

General Shape. Irregular stands; crowns with generally rounded outlines.

Distribution. Varied, and in small scattered areas. Frequently on steep slopes of river valleys.

Tree Types Included. Oak, sessile oak, ash, alder, sycamore, beech, etc.

Coniferous Woodland (Plantations)

Tone. Dark to very dark grey.

Texture. Even, fine stippling: grain varies with species and age of planting.

Stereoscopic Appearance. Heights appear exaggerated; general even level to tree crowns, usually merging into a solid canopy.

General Shape. Stands usually with regular rows, sharp boundaries and numerous fire breaks. Where visible, crown shadows have characteristic triangular outlines.

Distribution. Mainly in the higher moorland areas. Planted by the Forestry commission.

Tree Types Included. Spruce, larch, fir and pine.

Heathland, Moorland, Rough Hill Pasture

Tone. Variable, usually medium to light grey, mottled, with darker areas of bracken, gorse, heather, etc.; may be very dark where soils are peaty and drainage bad.

Texture. Uneven and sometimes coarse; thin vegetative cover reflects variability of underlying rock and soil types, accentuated by the presence of gorse and bracken.

Stereoscopic Appearance. No apparent height, except where bracken, gorse or low shrubs are present.

General Shape. Irregular: some relatively large continuous areas, other areas are small and discontinuous.

Distribution. Widespread in open upland areas of the moorland, in areas of bog and poor drainage, and on steep valley sides where there are no trees or where the latter have been felled.

Improved Permanent Grass (Down Over Three Years)

Tone. Medium grey; small inclusions of darker tones where drainage is poor, or lighter tones where the soil is thin.

Texture. Generally uneven and with fine stippling. Usually uniformly grazed due to approximately the same palatability throughout.

Stereoscopic Appearance. No apparent height of vegetation in contrast to the exaggerated height of trees. Usually a dense sward, but with occasional patches of bare soil, especially near the entrances of fields where the grass has been poached by livestock.

General Shape. Small, irregularly-shaped fields or enclosures. Mounds of lime (with very light photographic tone) and/or dung (dark photographic tone) occasionally visible. Hedges and drains often neglected.

Distribution. Scattered throughout the Coastal Plateau of West Wales, along the river valleys, and in occasional favoured localities close to farms on the higher-altitude moorland areas.

Arable or Tilled Land

Tone. Light grey; dark grey immediately after ploughing becoming progressively lighter.

Texture. Usually very fine and smooth.

Stereoscopic Appearance. No apparent height. The spring-sown crops, roots, corn or grass are just beginning to appear in this area at this season.

General Shape and Appearance. Small, irregularly-shaped fields, usually with well-kept bounding hedges or mud-dykes capped with gorse.

Distribution. Scattered over the Coastal Plateau of West Wales, and along the river valleys. In the higher-altitude moorland area occasionally found in favoured localities, generally in close proximity to the scattered farms.

Rotation Grass

Following the arbitrary rule employed in the Land Utilisation Survey of Great Britain this is classed as Arable when down less than three years. It is not claimed that three- and four-year leys can be distinguished.

Tone. Usually medium to dark grey, due to the greater leafiness and inherently green colour of the sown species of grasses and clovers. Chlorophyll appears dark in photographs.

Texture. Slightly more uneven than permanent grass, due to the presence of clover and a variety of grass species, and because such areas are unevenly grazed consequent upon differing palatabilities of the included species of grasses.

Stereoscopic Appearance. No apparent height. A light background to the dark grass cover is often visible, the generally low seed rates and comparative youth of the grass ley not having permitted the development of a dense sward.

General Shape. Small, irregularly-shaped fields, usually with well-kept hedges and drainage channels.

Distribution. As for permanent improved grass.

Conclusion

The technique and certain of the interpretation criteria that have been described above are capable of general application, and similarly, land use keys can be made for any part of the world covered by air photography of suitable scale.

Apart from describing the photographic method of approaching a study of land use, this short paper may also reveal to geographers interested in other aspects of the landscape, the possibilities of the photographic approach. Physical, historical and urban geography, to name but three such, may derive much aid from the use of air photographs and students should endeavour to make the greater use of this valuable medium. For, as Professor Linton has recently observed, " Geography, as the science which attempts the explanatory description of the differentiation of the earth's surface in area, will remain deprived of an essential and important part of its field evidence as long as it does not make full use of the third-dimensional view-point as represented by air photographs."[3]

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[3] D. L. Linton. *Geography and Air Photographs.* Special Publication of the Geographical Association, 1947, p. 32.

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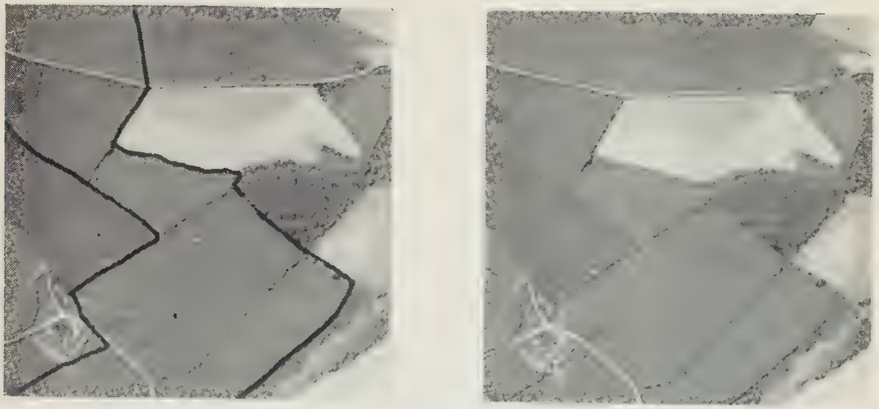

Fig. 5.—Improved permanent grass.

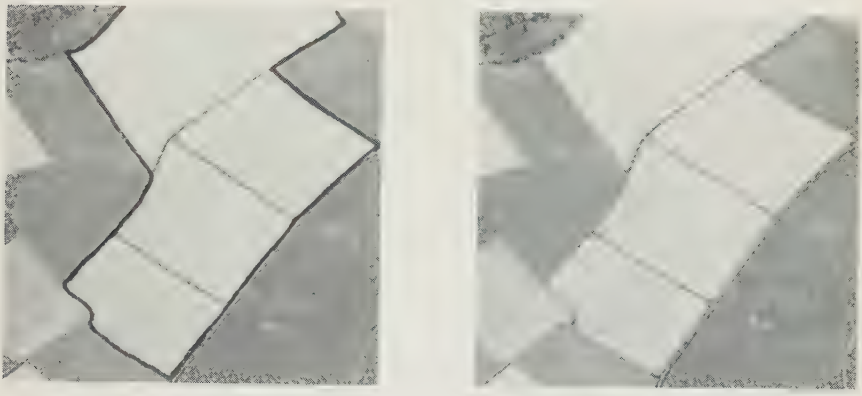

Fig. 6.—Arable or tilled land.

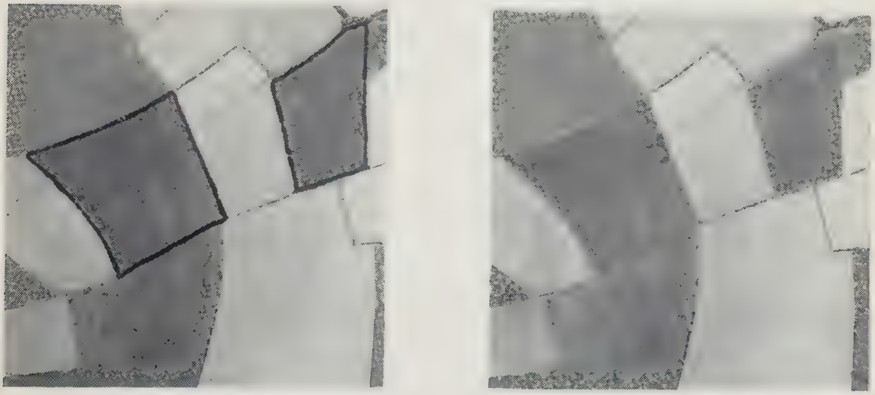

Fig. 7.—Rotation grass.

Halford John Mackinder,
1861–1947.

SEVEN LAMPS OF GEOGRAPHY

AN APPRECIATION OF THE TEACHING OF SIR HALFORD J. MACKINDER

EDMUND W. GILBERT*

SIR HALFORD MACKINDER died on March 6th, 1947, at the venerable age of 86. Several obituaries of this great geographer have appeared in print, including a short but eloquent tribute in the Geographical Association's quarterly *Geography*, by Dr. Hilda Ormsby,[1] but very little has been written about his work as a teacher.[2] This paper is divided into three parts. The first briefly considers the state of geography in the schools of Britain in the early years of the 19th century; its purpose is to help the reader to appreciate the magnitude of Mackinder's achievements. The second part is a short account of Mackinder's life; without a biographical summary it is difficult to understand his teaching. The third and longest part is an analysis of his principal doctrines, which are here described as 'seven lamps of geography.'

In the early 19th century the academic study of geography had fallen to its lowest ebb, and that in spite of the voyages and journeys of the great explorers. Geographical education consisted largely of learning by rote the names of places and products. Our unfortunate ancestors had to get by heart long inventories of capes and islands, of countries and cities. The 'Scientific Tables' of *The Student's Classical Guide to the Sciences* (1818) are typical of this kind of study. From these tables children learnt that the principal 'animals' of England were 'horses, wild fowls, sheep and bustards' and that while the 'government' of England was 'Monarchial Aristocratical,' that of Denmark was 'Absolute Monarchy' and that of Turkey 'Despotic.'

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*Mr. Gilbert is Reader in Human Geography in the University of Oxford. His paper was read to the annual conference of the Geographical Association in the London School of Economics on Thursday, January 5th, 1950, and to the Liverpool and District Branch of the Association in the University of Liverpool on Thursday, January 18th, 1951.

The original of the portrait of Sir Halford Mackinder, reproduced opposite, now hangs in the London School of Economics. It was drawn by Sir William Rothenstein in 1933 when Sir Halford was 72 years of age. With the kind permission of Sir Alexander Carr-Saunders, Director of the London School of Economics, and with the generous help of Professor L. Dudley Stamp, a photographic reproduction of the portrait was made specially for this issue of *Geography*.

[1] *Geography*, 32 (1947), pp. 136–7. Longer obituaries appeared in *Geogr. Journ.*, 110 (1947), pp. 94–9, by E. W. Gilbert and in *Nature*, vol. 159 (April 19th, 1947), pp. 530–1, by L. Dudley Stamp.

[2] An interesting exception is Professor J. F. Unstead's paper on 'H. J. Mackinder and the New Geography,' *Geogr. Journ.*, 113 (1949), pp. 47–57.

A small book called *References to Geography used at Townhead School near Rochdale* (1803) contains similar lists of provinces and their capitals, of rivers and lakes, all to be got by heart by school children, but it does also include statistics of population and even some facts about the rate of wages in Hindoostan. Sometimes the learning of the names of capes and bays was made easier by fitting them into lines of doggerel verse. The *Geographical Guide : a poetical nautical trip round the island of Great Britain* (1805) describes the coastline of Britain in lines such as these :—

> ' Round England and Scotland prepare for a trip,
> And whilst British Tars are unmooring the ship,
> We'll over a map of the isles take a glance,
> Then start from Land's End, and sail round by Penzance.
> Mount's Bay having cross'd, by the Lizard then steer
> Your course to—North-East and by North quickly veer,'

and continues in the same strain the whole way round Great Britain with a mention of every cape and bay.

Another method of learning geography was known as the use of the globes. W. M. Thackeray in his *Vanity Fair*, published in 1847, just over a century ago, gibed at Miss Pinkerton's Academy for young ladies because that institution advertised geography and the use of the globes as a principal subject in its curriculum. Sir John Ross, in his *Narrative of a second voyage in search of a North-West passage* (1835), when describing an interview with an eskimo woman called Tiriksiu (pp. 261–2), said :—' I soon found too, that this personage, woman though she was, did not want a knowledge of geography, and that also, of a different nature from what she might have acquired in an English boarding-school, through the question book and " the use of the globes." She perfectly comprehended my chart ; and being furnished with the means, drew one of her own, very much resembling it, but with many more islands : adding also the places where we must sleep in our future progress, and those where food was to be obtained. On these points, at least, it was an emendation of the knowledge we had attained before.' There were many question books of the kind to which Ross refers ; an early example, *An Introduction to Geography by way of Question and Answer* (1739) contains (pp. 4–5) the following questions and answers which are typical of the teaching which was still being given on the use of the globes in the early 19th century.

> ' *Qu.* How many sorts of lines are to be observed on the breadth of the globe ?
> *Ans.* Three sorts, *viz.* large capital lines ; middling lines ; and small lines.
> *Qu.* How many capital lines are there in the breadth ?
> *Ans.* Two, the Equator, and the Zodiac.'

Greater interest in geography was probably aroused by the story books such as those written by Peter Parley. His *Tales about Canada* (1843) and his *Tales about Universal History on the basis of Geography*

(5th ed. 1849) are examples of this kind of literature. Mrs. Sherwood's *The Traveller* (1844) is a similar work which intersperses a few remarks on politeness among the geographical material. 'The boys,' writes Mrs. Sherwood, in describing the frontispiece of her book, 'are very glad to see the Traveller,—Edmund has snatched Thomas's cap from his head, and is going to wave it ; might it not have been more polite, if he had taken off his own cap for the purpose.'

As the century developed a large number of books on physical geography appeared in quick succession. Mary Somerville's famous *Physical Geography* was first published in 1848 ; there were many flagrant copies of her admirable book and these were not always so geographical as the original.[3] Most of these text-books dealt with physical processes only ; some of them tried to relate physical geography to human life, but such attempts were infrequent. Sir Halford Mackinder repeatedly asserted that the generalities of the old physical geography, which he regarded as a specialism of geology, were responsible for the low state of geography during the 19th century (*Geogr. Journ.* 57 (1921), p. 377).

John Richard Green, the historian, summed up the position of geographical education in British schools in 1880 in the introduction (pp. vii–viii) of *A Short Geography of the British Islands* (1880), written jointly with his wife Alice Stopford Green, in the following passage :—

> 'No drearier task can be set for the worst of criminals than that of studying a set of geographical text-books such as the children in our schools are doomed to use. Pages of "tables," "tables" of heights and "tables" of areas, "tables" of mountains and "tables" of table-lands, "tables" of numerals which look like arithmetical problems, but are really statements of population ; these, arranged in an alphabetical order or disorder, form the only breaks in a chaotic mass of what are amusingly styled "geographical facts," which turn out simply to be names, names of rivers and names of hills, names of counties and names of towns, a mass barely brought into grammatical shape by the needful verbs and substantives, and dotted over with isolated phrases about mining here and cotton-spinning there, which pass for Industrial Geography. Books such as these, if books they must be called, are simply appeals to the memory ; they are handbooks of mnemonics, but they are in no sense handbooks of Geography.'

The raising of geographical education from the slough into which it had fallen was due, in the first place, to the efforts of the Royal Geographical Society. That fact should never be forgotten. The Society, founded in 1830, was the outcome of a travellers' club, and for a long time its main and only interest lay in the promotion of exploration. It was some years before the Society took any steps to foster geographical education, but in 1866 the Society's Council began to award an annual prize of £5 to candidates at the Society of Arts examinations for their work in geography ; this grant was discontinued in 1873. In 1869 the Society at the suggestion of Francis Galton, offered two gold medals and two bronze medals as prizes for competitions in physical geography and in political geography at the principal Public Schools. Sixty schools took part, some of them half-heartedly, and the medals were given for the last time in 1883. In all, 62 medals were awarded and two schools (Dulwich and Liverpool College) carried off 30 between them. Eton obtained five and Rossall four. The Council of the Royal Geographical Society was very disappointed in the results of its educational efforts, and in 1884 it was decided to make a thorough inquiry into the teaching of geography at home and abroad. There was no need for any research to discover that the position of geography in British schools and universities was thoroughly unsatisfactory. On the other hand little was known in England about the very different state of affairs with regard to the teaching of geography in the schools and universities of foreign countries. John Scott Keltie was appointed the Society's Inspector of geographical education and he travelled abroad collecting material. His *Report* dated May 1885 (*R.G.S. Supplementary Papers I* (1882–85), pp. 439–594), is still worth reading as it reveals not only the low standard of geographical teaching prevailing in England at that time, but also measures the immense progress which has been made since its publication, sixty-five years ago. One English headmaster told Keltie that geography was " little more than an effort of memory " and " quite worthless educationally." Keltie's most important conclusion was that no improvement could be effected in the schools unless the universities gave the subject a real place in their examinations. He thought the immediate prospect at Oxford was not so hopeful as at Cambridge ; as it turned out the reverse was true.

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[3] *See* J. N. L. Baker, 'Mary Somerville and Geography in England,' *Geogr. Journn.*, 111 (1948), pp. 207–22, for a detailed account of Mary Somerville's work and of the position of geographical studies in English Universities in the nineteenth century.

The Royal Geographical Society had already approached Oxford and Cambridge in 1871 and again in 1874 but with no result. In 1886, stimulated by Keltie's *Report* the Society tried again. In February 1887, a delegation from the Society visited Oxford and at the end of the month it was announced that the university had decided to establish a Readership in Geography for five years. The salary was to be £300 towards which the Society was to contribute £150. Thus Oxford has the credit of being the first university to take action. Cambridge created a Lectureship in the following year, but that post was not converted into a Readership until 1898.

In July 1887, it was recorded in the *Proceedings of the R.G.S.* (9 (1887), p. 437) that Mr. Halford J. Mackinder had been appointed to the Oxford Readership. The statement added that his ' geographical lectures have attracted large audiences during the past two seasons at the chief centres of the Oxford University Extension in the north and west of England. The interests of geography as an important and definite branch of knowledge and as a necessary element in education will be safe in Mr. Mackinder's hands.' When the delegates from the

Society visited Oxford in February 1887, they must have been able to assure the university that there was a potential candidate for the proposed Readership who possessed the knowledge and power to make geography attractive. It seems highly probable that the availability of Mackinder for the post was a determining factor in persuading the university authorities to establish the Readership. Halford John Mackinder was the man who was destined to breathe new life into the dry bones of academic geography.

It is not proposed, in this paper, to say much about Mackinder's life which has already been fully treated in the obituaries. He was born at Gainsborough in 1861, the eldest son of a doctor. It is worth noticing that the great French geographer Vidal de la Blache was born in 1845, sixteen years earlier. He was educated at Gainsborough Grammar School, Epsom College and Christ Church, Oxford, to which he was awarded a Junior Studentship in 1880. He had a brilliant university career, read two Honour Schools, Natural Science and Modern History, was President of the Union, was called to the Bar and then served the cause of Oxford University Extension, with his friend Michael Sadler, also a Christ Church man. He lectured on what he called ' the New Geography.'[4] Accounts of these lectures came to the ears of the Royal Geographical Society and he lectured to the Society by invitation in January 1887, on ' the scope and methods of Geography ' (*Proc. R.G.S.*, 9 (1887), pp. 141–160). This lecture was a remarkable performance especially when it is remembered that Mackinder was a man of only twenty-five years of age and still a B.A. During the lecture an Admiral in the front row kept on muttering ' damned cheek,' but Francis Galton prophetically remarked in the discussion that Mackinder was ' destined to leave his mark on geographical education.' After this lecture Mackinder's appointment to the Oxford Readership was inevitable. Mackinder's achievements can be summarised briefly under half-a-dozen headings.

The establishment of geographical teaching in the Universities. Mackinder was, as he himself used to say, the first Oxford Reader in Geography since the Elizabethan Richard Hakluyt, also a Christ Church man.[5] During the first few years of Mackinder's tenure of the Readership he became firmly convinced that, in order to secure the serious study of geography in the schools of this country, it was essential to establish an institute from which teachers could obtain a recognised qualification. It was not enough merely to give lectures in a university. In 1899 Mackinder became the Director at Oxford of the first English School of Geography, that is the first building or institute in which teachers could be trained and from which they could obtain a qualification. The first term, Michaelmas 1899, was spent in preliminary work and effective teaching did not begin until January 1900, exactly 50 years ago. The School was originally housed in the upper floor of the Old Ashmolean Museum. Again it was a great credit to Oxford to be the first English university to found a School, particularly as Mackinder had said, when pleading for such an institution in a speech to the British Association at Norwich that 'it must be in London under the immediate inspiration of the Royal Geographical Society' (*Scot. Geogr. Mag.*, 11 (1895), p. 510). The latter Society gave the Oxford School considerable financial support from the start. The first examination for the University's Diploma was held in June 1901. A photograph, now in possession of the School, shows the four candidates at this examination with H. J. Mackinder, the Reader in Geography, A. J. Herbertson, Lecturer in Regional Geography and H. N. Dickson, Lecturer in Physical Geography.[6] Mackinder served as Reader at Oxford until 1905. Christ Church, in 1892, elected Mackinder to a Studentship (Fellowship) and offered his services to the University Extension Association at Reading. Mackinder worked at Reading as well as at Oxford from 1892 to 1903 serving as Principal of the College which had developed from the Oxford University extension movement. As he himself remarked, he was a 'pluralist'; simultaneously with his Oxford and Reading appointments he held a teaching post at the London School of Economics from 1895, the year of its foundation. In 1908, this post became a readership which Mackinder finally resigned in 1925[7]; he was also Director of the London School of Economics from December 1903 to 1908. In the Universities of Oxford, Reading and London he himself built up methods of teaching geography, but he also encouraged the work of younger men. Not his least service to British geography was his success in persuading Herbertson to come to Oxford rather than accept an appointment in the U.S.A.

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[4] A printed syllabus of these Oxford University Extension Lectures on ' The New Geography ' (1886) is in the Bodleian Library.

[5] In his first year as Reader at Oxford, Mackinder lectured on ' principles of geography,' ' the geography of central Europe,' and ' the influence of physical features on man's movements and settlements.' He also gave a public lecture on ' natural roads and sites of towns in Southern Germany,' attended, he says, ' by several prominent seniors of the university.' In the following year he gave 21 lectures on physical geography to a small audience, but he recorded that ' four members of the university, and one or two lady students honoured me with exemplary regularity.' His lectures with a more historical bias were always better attended.

The foundation of the Geographical Association and the improvement of geographical teaching in schools. On May 20th, 1893, Mackinder took the chair at a meeting held in the New Common Room, Christ Church, at the instigation of B. B. Dickinson, rightly regarded as the founder of the Geographical Association. But it was Mackinder who proposed from the chair at this meeting in Oxford 'the formation of an Association for the improvement of the status and teaching of geo-

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[6] The four candidates were W. Bisiker (Wadham), E. C. Spicer (New College), W. Stanford (Wadham) and Joan B. Reynolds (Society of Oxford Home-Students). The last-named made several contributions to early numbers of the *Geographical Teacher.*

[7] In 1923 the University of London conferred the personal title of Professor on Mackinder; the chair of Geography at the London School of Economics was not established until 1925, after Mackinder's retirement and was held by L. Rodwell Jones until 1945.

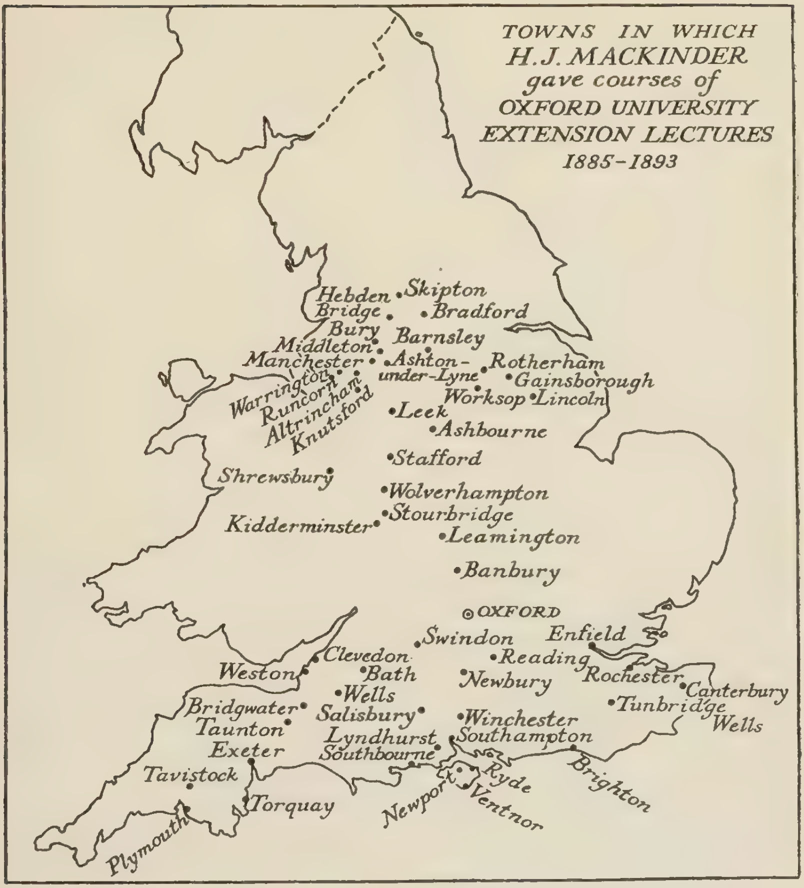

Fig. 1.

graphy.' (*Geography*, 16 (1931), p. 6). He can, therefore, be regarded as the co-founder of the Association ; certainly he fostered its interests throughout his long life. It was fitting that the birthplace of the Geographical Association should have been Christ Church, the college of Richard Hakluyt, Halford Mackinder and later of Percy Roxby.

In order to promote the improvement of geographical teaching in schools, Mackinder prepared a number of text-books each written with scrupulous care for the proper use of English. Most of them were published by George Philip and Son. *Our Own Islands* (1906) ran into its 19th edition in 1935, while *Lands Beyond the Channel* (1908) reached its 14th edition in 1928. The firm of George Philip and Son have kindly informed the writer that they issued over half a million copies of Mackinder's school text-books.

Mackinder's work for adult education. Mackinder toured the country and preached the New Geography with all the missionary zeal and fervour of a Wesley. Only his strong physical constitution enabled him to carry out such arduous work. He gave 102 extension lectures in the year 1887–8 alone[8] and over 600 in his career. He travelled 30,000 miles in three years while engaged on this task. By these lectures he taught ‘ several thousand pupils, many of them elementary teachers and students in training colleges.’ (*Geogr. Journ.* 57 (1921), p. 378). The map shows the towns in which he gave university extension courses between 1885 and 1893 (Fig. 1).

Mackinder as an explorer. In 1898, when he was still working at both Oxford and Reading, Mackinder decided to make an expedition to East Africa ‘ because at that time most people would have no use for a geographer who was not an adventurer and explorer.’ He spent the long vacation of 1898 climbing in the Alps and in the summer of 1899 he made the first ascent of Mount Kenya, a feat which is fully described in the *Geographical Journal* (15 (1900), pp. 453–76). He was assisted by two Italian guides, César Ollier and Joseph Brocherel. Mackinder gave a shorter but very graphic account of this expedition at the centenary celebrations of the Royal Geographical Society in 1930. (*Geogr. Journ.* 76 (1930), pp. 529–34).

Mackinder as a politician and public servant. After two unsuccessful attempts to enter Parliament, at Warwick and Leamington in 1900 and at Hawick Burghs in 1909, Mackinder was elected for the Camlachie division of Glasgow in January, 1910, by a small majority (434) and held his seat at the General Election in December of the same year by an even narrower margin (26). He sat for the Camlachie division until he was defeated in 1922 ; he did not contest another election. He served as British High Commissioner for South Russia in 1919–20 and was knighted on his return ; he also sat on several Royal Commissions and Government committees. In 1926 he became a Privy Councillor and also Chairman of the Imperial Economic Committee, but his public career is a story in itself and cannot be fully described here.

As a Lecturer Mackinder was outstanding. It has been said that his lectures at Oxford regularly concluded with applause. Sir Charles Grant Robertson remarked that Mackinder and Oliver Lodge (with very different techniques) were the two best lecturers he ever heard. Dr. Hilda Ormsby has described how Mackinder, ‘ tall, erect, distinguished, strode, always a few minutes late, up the gangway of the Great Hall of the London School of Economics, packed with eager and impatient students, to the rostrum, as he paused a moment or two to take in the array of maps that hung there, and then, turning to his audience delivered in his sonorous voice, without ever a note, a perfectly argued and presented synthesis.’ (*The Times*, March 17th, 1947).

Seven Lamps of Geography

I now turn to Mackinder's teaching and first I must explain the title of my paper. In 1849, just a hundred years ago, John Ruskin published his famous work, *The Seven Lamps of Architecture.* Like Ruskin, Mackinder was also a Christ Church man ; like Ruskin, Mackinder lectured to crowded audiences at Oxford. Ruskin's influence on art was similar to Mackinder's influence on geography. Both these men of genius started reformations in the study and practice of their own subjects, the one in art, the other in geography. Dr. Thomas Sharp remarked recently 'that the full and final explosion of the Gothic Revival was ignited by Ruskin's seven lamps.'[9] It is worth pointing out that in the very same year that Mackinder started the Oxford School of Geography, that is in 1899, Ruskin College was founded at Oxford, and named after Ruskin who died in the following year. In Ruskin's case one book, *The Seven Lamps of Architecture.* gives us the morals of his teaching. Unfortunately, in Mackinder's case, there is no one book which summarises his main doctrines. He wrote a number of books, but the principal sources for Mackinder's views on teaching are his papers which lie scattered among many different periodicals, some of which are difficult to obtain and are not read by students as much as they deserve to be. I have compiled a list of Mackinder's published papers which number 30 in all and range in date between 1887 and 1945 ; the list is printed at the end of this article. After going through these papers I have grouped some of Mackinder's ideas under seven heads as seven lamps of geography. Ruskin put the definite article before his seven lamps. I have not done so because the choice of ideas is mine and I am well aware that this paper is in no sense a comprehensive picture of all Mackinder's ideas. I have merely selected what are, in my opinion, Mackinder's most important contributions to geographical teaching and I shall quote freely from his writings.

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[8] In that year he gave courses of extension lectures at Barnsley, Worksop, Leek, Bath, Taunton, Bridgwater, Enfield, Tunbridge Wells, Ashbourne and Banbury.

The Region. The first lamp is the region. Herbertson is generally given all the credit for starting in this country the teaching of geography by regions. But the idea of the region permeates Mackinder's famous lecture to the R.G.S. in 1887 on 'the scope and methods of geography.' (*Proc. R.G.S.*, 9 (1887), pp. 141–60). In that lecture he defined geography as 'the subject whose main function is to trace the interaction of man in society and so much of his environment as varies locally' (p. 143), and he added that '"an environment" is a natural region. The smaller the area included the greater tends to be the number of conditions uniform or nearly uniform throughout the area' (p. 156).[10] The series of books planned by Mackinder and called *The Regions of the World*, of which *Britain and the British Seas*, published in 1902,[11] was the first, aimed at presenting 'a picture of the physical features and conditions of a great natural region, and to trace their influence upon human societies.' (Preface, p. vii). Those words were written by Mackinder two years before Herbertson read his famous paper on 'the major natural regions' to the Royal Geographical Society in February, 1904. Mackinder, in an obituary notice of Herbertson, referred to the latter's first appointment at Oxford as follows :—'When we made him Lecturer in "Regional" Geography in the Oxford School, we used for the first time officially the word which was and, in my opinion, still is, the key to right method alike in school and university' (*Geogr. Teacher*, 8 (1915), p. 143). In later years Mackinder often returned to the regional theme. 'Geography,' he wrote in 1935, 'presents regions to be philosophically viewed in all their aspects interlocked' (*Geogr. Journ.*, 86 (1935), p. 12). In 1937 he put the matter more fully in the following words :—'the idea with which the School of Geography was founded at Oxford . . . was to bring the subject into its own again, by using "physical" geography for the analysis of "regional" geography. Our aim was to put the answer to the question "where" into the foreground, and then to answer the question "how" in the form of "why there?" . . . the distributions of the various categories of phenomena in a given region having been separately mapped, it then, and then only became safe to proceed to correlate those distributions into a complex or synthesis of interlocked forms and interacting functions.' (*Proc. R. Phil. Soc. Glasgow*, 63 (1936–7), pp. 178–9).

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[9] T. Sharp, *Oxford Replanned* (1948), p. 49.

[10] In a paper read to the British Association at Manchester in September, 1887, Mackinder described the courses of lectures which he was planning to give regularly in Oxford. Course A on the principles of geography would be largely physical but 'Course B will vary in subject from year to year but will always be an analysis of a particular region.' (*Proc. R.G.S.*, 9 (1887), p. 699).

[11] Vidal de La Blache's classic regional study, *Tableau de la Géographie de la France* first appeared in 1903, a year after Mackinder's *Britain and the British Seas.*

By their joint efforts at Oxford, Mackinder and Herbertson placed the study of regions in the very forefront of geographical work in British universities and this process was further developed by Herbertson's many pupils. The influence of what was in origin an Oxford movement has been very great in the schools as well as in the universities of the country. Ultimately, by means of regionalisation, it has even affected the administration and government of Great Britain.

The Homeland and the Empire. The second lamp is the teaching of the regional geography of the British Isles, the homeland, and of the British Empire, or as it is now called the Commonwealth. Mackinder's book, *Britain and the British Seas* (1902) is a classic, a work of art, and although out of date in some respects, it cannot be neglected by any serious student of geography. Mackinder's school text-book on the same subject, *Our Own Islands* (1906), was written with equal care. Dr. Ormsby has told how Mackinder wrote and re-wrote his elementary text-books with the object of giving lucidity and precision to every sentence.

But Mackinder did not confine himself to the home country ; he did his utmost to improve the teaching of the geography of the British Empire in all schools throughout the Empire. He was a member of the visual instruction committee of the Colonial Office. Under that committee's auspices he wrote *Seven Lectures on the United Kingdom* and six different editions of this book were published for use in various parts of the Empire.[12] These lectures were illustrated with carefully chosen sets of lantern slides. His eight lectures on India were produced in 1910 with the authority of the same committee. Incidentally, Mackinder must be regarded as one of the pioneers in the development of visual education. B. B. Dickinson, the founder of the Geographical Association, was the chief pioneer in the use of lantern slides and photographs in geographical teaching. In fact, Dickinson's main reason for calling the meeting which resulted in the foundation of the Association was to discuss the use of the lantern in teaching and to pool the available slides, especially those of the Empire. (*Geography*, 16 (1931), pp. 5–6).

Two of Mackinder's papers are concerned with the teaching of the geography of the Empire (*Geogr. Journ.*, 33 (1909), pp. 40–78 ; *Geog. Teacher*, 6 (1911), pp. 79–86), while a third on the English tradition and the Empire reveals the influence of Lord Milner on Mackinder's thought (*United Empire*, 16 (1925), pp. 724–31). In his autobiography[13] H. G. Wells tells of a small dining club called the Coefficients to which he himself, Lord Milner, Mackinder and others belonged during the period 1902–08. The club included many young Imperialists among whom L. S. Amery and Mackinder were the most prominent. As Mackinder was such a firm believer in the British Empire, it is not surprising to find that eventually he held the office of chairman of the Imperial Shipping committee for 25 years, and, for a time also, that of chairman of the Imperial Economic committee. It has been said that all the reports of the Imperial Shipping committee ' bore plainly the impress of Sir Halford Mackinder.' (*The Times*, March 8th, 1947).

Mackinder believed in promoting mutual knowledge of the various parts of the Empire and he regarded visual instruction by lantern slides and pictures as one of the most effective means of carrying out his aims. I feel sure that Oxford's pioneer move in being, in 1947, the first British university to establish a lectureship in colonial geography, with resultant research into the regional geography of the British colonies, would have had Mackinder's warm approval.

World Geography. The teaching of world geography is the third lamp. Although Mackinder placed the study of the region in the front of geographical thought and laid especial emphasis on the regions of Britain and her Empire, he never forgot to treat the world as a whole. ' In geography,' he said, ' no mere region is self-contained.' (*Proc. R. Phil. Soc. Glasgow*, 63 (1936–7), p. 180). It is clear that his own personal consciousness of the earth as a rotating globe was very strong.

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[12] The preface to the West African edition (1906) of the book states that the object of the lectures ' is to give to the school children of the West African Colonies, through their eyes as well as their ears, a true and simple impression of what the United Kingdom and its people are like.'

[13] H. G. Wells, *Experiment in Autobiography* (1934), pp. 760–65. An account of the club with thinly veiled descriptions of its members is to be found in his *The New Machiavelli* (2nd edition 1911). I am indebted to Prof. S. W. Wooldridge for this reference.

'I remember,' he wrote, 'once standing at sunset on the deck of a becalmed vessel off the coast of Morocco ; there was not a cloud in the sky, nor a ripple on the sea as I watched the hard western horizon *rise* over the face of the sun. At that moment I *saw* the earth rotate. It was, of course, a subjective certainty inspired by my schooled mind in the absence of any competing suggestions to the contrary. Even for me I confess that the sun normally sets.' (*ibid*. pp. 171). Mackinder constantly emphasised that no region could be studied in isolation. 'At Oxford,' he writes, 'we had hardly settled down to the distributional or regional conception of geography, when we were compelled to adapt our minds to a further conception. *There is no complete geographical region either less than or greater than the whole of the earth's surface.*' (*ibid.* p. 179). Again and again Mackinder returned to the same theme. In the same lecture he stated that 'the distribution of each category of phenomena is necessarily spherical, or in other words a closed system.' He had always emphasised the unity or rather the continuity of all the oceans and regarded the water as the great unifying factor in the world. In 1919 he said that 'the ocean was one ocean all the time, but the practical meaning of that great reality was not wholly understood until a few years ago' and added that 'perhaps it is only now being grasped in its entirety' (*Domestic Ideals and Reality* (1919), p. 39). The conquest of the air gave the unity of the world a new and vital significance for all mankind, a fact that was fully appreciated by Mackinder. Writing in 1942 he said that 'to-day, for the first time, the habitat of each separate human being is this global Earth.' (*Geography*, 27 (1942), p. 129).

The Unity of Geography. The fourth lamp of Mackinder's teaching is the unity of geography. Just as he taught that the whole world was the geographer's real parish—a world that cannot be broken absolutely and finally into regions—so he taught that geography was a unity which should not be split into fragments. If it were so divided he feared that each portion of geography would be absorbed in some other branch of learning. Mackinder always remembered and deplored what had happened in the 19th century when geography was deprived of every duty except that of recording mere lists of names. 'In this country,' said Mackinder, 'the geologists had captured Physical Geography, and had laid it out as a garden for themselves, while the remnant known as "General Geography," was a no man's land, encumbered with weeds and dry bones. Before British Geography could come into its own again it was necessary to re-annex the garden and to clear and cultivate the waste.' (*Geogr. Journ.* 57 (1921), p. 377). In Mackinder's view the modern rise of geomorphology and other specialisms inside the fold of geography seriously endangered the subject as a whole. 'Somewhere in geography,' he wrote in 1931, 'there is a fundamental unity which eludes us. Is not our difficulty how to weld together the geological and the human aspects of the subject ? . . Is it not perhaps the lure of geomorphology which has been misleading us ? I am not prepared to go quite all the way with

Professor Douglas Johnson of Columbia University, who would wholly exclude geomorphology from geography, but I am ready to regard it as a secondary and not the primary factor. Geomorphology, as it has now developed, has internal coherence and a consistent philosophy. and in their hunger for these joys many of our geographers have blinded themselves to the fact that as geomorphologists they are not in the centre but on the margin of geography. I had almost said that in escaping from servitude they had robbed the Egyptians, the geologists, and had been cursed for the possession of ill-gotten goods by a generation spent in the wilderness.' (*Scot. Geogr. Mag.*, 47 (1931), p. 323). In the same lecture (p. 334) he said that ' the temptation to describe a region in terms of geological dates is besetting and insidious. It is a dangerous practice because it tends to lead the geographer away from his duty. Geology should be to the geographer what anatomy is to the artist ; the subsidiary subject makes a good servant but an ill master.'

This does not mean that Mackinder was not interested in physical geography. On the contrary in his first lecture to the Royal Geographical Society, in 1887, he devoted much space to a physical description of south-eastern England. In fact he regarded physical geography as the foundation of the whole subject and gave lectures on that subject from the very first years of his appointment as Reader at Oxford. His own contributions to physical geography were not insignificant. Dr. H. R. Mill once referred to Professor J. W. Gregory's ' admiration of the way in which Mackinder's speculations or rather intuitions, were confirmed by his detailed study of the origin of the sea-lochs of Scotland.' (*Geogr. Journ.*, 69 (1927), p. 214 ; 86 (1935), p. 13).[14] But to Mackinder physical geography could not stand alone ; he regarded it as ' in large measure preparatory to the subsequent chapters of the subject which deal with the humane aspect of it.' (*Geogr. Journ.*, 34 (1909), p. 320).

Again Mackinder was a trained historian and all his work bears evidence of his abiding interest in history and of his belief that the two subjects were closely allied. Nevertheless he proclaimed his fear of geography losing its individuality in history. In 1931 he wrote as follows :—' it seems to me that there is a little danger that we should mix history with geography without seeing clearly what we are doing. Geology is a part of history, and I think we ought to remember all the time that geography proper is a description of things in the present. Geography should, as I see it, be a physiological and anatomical study rather than a study in development. As its name implies, it should be a description, with causal relations in a dynamic rather than a genetic sense.' (*Geogr. Journ.*, 78 (1931), p. 268). Mackinder did render considerable service to the specialism of historical geography as such, which he regarded as ' a study of the *historical present*, an idea and expression familiar to all literary folk.' (*Geogr. Journ., ibid*). But while recognising that ' in the geography of to-day are undoubtedly a number of remnants of such past geographies ' he asserted that those circumstances ' should not alter the whole perspective of the main subject.' (*Geogr. Journ., ibid*). The fact is that he regarded both geomorphology and historical geography as specialisms and stoutly maintained his constant belief in the unity of the subject as a whole. It has been suggested that all geographical knowledge, whether physical or human, is merely a part of history. Mackinder's insistence on the living geographical present is a valuable antidote to counteract this purely genetic view of geography, now so dominant in this country.

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[14] Professor S. W. Wooldridge has recently stated that Mackinder's *Britain and the British Seas* ' embodies original contributions in the field [of geomorphology], notably the chapter on the rivers of Britain. *London Essays in Geography* (1951), p. 26.

Mackinder has told how, at the beginning of this century, in spite of all his efforts, there was ' a fresh tendency to break the subject up again, and to attach the chapters of geography to the several sciences to which they are cognate.' (*Report Proc. Internatl. Geog. Cong.* 1928 (1930), p. 307). In spite of that he ' clung all the time to the idea that there is a fundamental unity in all geographical thought, whatever the necessity of specialisation for purposes of research into process. It was for that reason, and in protest against the disintegrating thought ' which he saw becoming prevalent that he laid stress on the regional aspect of the subject. But for a time he thought he had failed. ' The universities,' he says, ' established more schools of geography, but at the same time published curricula containing often very little real geography. The critic was once more emboldened to deny that geography could exist as a reputable study.' Latterly Mackinder believed that the pendulum had finally swung back and that the regional idea was in the ascendant, and he attributed the fact to the work of the Geographical Association (*ibid*, p. 308). But it seems that since the end of the second world war there has been another swing of the pendulum towards specialism. It behoves geomorphologists, historical geographers, and all other specialists who travel in the many pleasant by-paths away from the main road of geography to ponder carefully Mackinder's remarks on the unity of the whole subject. It is not only a fact that interesting new by-paths are constantly being found, but it is also true that the explorers of these side tracks include some of the most influential members of the geographical profession. Many of them have strayed from the main road like lost sheep, and, wandering as they do in the outer margins of the subject, seem to have forgotten the central purpose of their journey.[15]

The Map. The map is the fifth lamp. Mackinder, when writing of the ideal geographer, said that ' as a cartographer he would produce scholarly and graphic maps ; as a teacher he would make maps speak.' (*Scot. Geogr. Mag.*, 11 (1895), p. 508). That describes exactly what he himself was able to do. As early as 1888 his wall-maps constructed for him by B. V. Darbishire for lectures at the Oxford Extension summer meeting attracted considerable attention (*Proc. R.G.S.*, 11 (1889), p. 503). In a letter to the writer dated April 24th, 1944, Sir Halford said :—' I created quite a sensation in my first lectures at Oxford in '87–'92 by illustrating my lectures with German wall-maps, without names but with broad effects of colouring and shading . . . such things were unknown in England at that time. Keltie brought them over from his mission on the continent.' In the same letter he described his method of teaching with wall maps. ' I used to lecture *extempore* on the maps,' he wrote, ' quite as much with my hands (plastically) as my voice. Say Wales—a sweep of the flat hand to generalise the highland,—a run of the finger along the edge descending to the English Plain.' In his books also Mackinder made much use of maps and diagrams on which only a few selected facts were shown, in order to make a certain argument more effective. This method of using maps for teaching is now commonplace both in lectures and in books, but the fact that Mackinder is largely responsible for introducing it into this country is often forgotten. ' In the *technique* of geography,' said Mackinder, ' the central fact is the map ' (*Geography*, 27 (1942), p. 123). He went on to say that ' the essential limitation of literature is that it must make its statements in sequence to the mind's ear, whereas geography presents its map to the mind's eye and states many facts simultaneously.' On another occasion he compared ' the ordering of facts on the map as seen by the geographical eye . . . to the ordering of the features on a face as seen by the artistic eye,' (*Report Internatl. Geog. Congress* 1928 (1930), p. 307).

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[15] A similar view has been strongly expressed by Maurice Le Lannou in a discussion on recent tendencies in French geographical thought in his book *La Géographie Humaine* (1949).

Applied Geography. The application of geography to the problems of Society and of the State was always in Mackinder's mind. His original definition of geography's object, namely to trace ' the interaction of man in society and so much of his environment as varies locally,' (*Proc. R.G.S.*, 9 (1887), 143), shows his belief in what we now call social geography, while in 1889 he said that the ' political geographer's is the crowning chapter of geography,' (*Scot. Geogr. Mag.*, 6 (1890), p. 83).[16] Several of his papers deal with political geography and of these his paper on ' the geographical pivot of history ' (*Geogr. Journ.*, 23 (1904), pp. 421–37), with its theory of ' the natural seats of power,'[17] is a classic ; its influence on German geo-politicians is known to all.[18] Mackinder described a part of Eur-Asia as the Pivot Area and later as the Heartland. The 1904 article and *Democratic Ideals and Reality* (1919), the book in which he expanded his views, are alarming works to read at the present, especially if read in conjunction with *The Times* and other daily newspapers. On p. 194 of the book is Mackinder's theory and famous prophetic warning.

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[16] It should be pointed out that Mackinder was using the term ' political geography ' in the wide sense then current when it corresponded roughly to what is now called ' human geography.' In 1888 in his *Syllabus of Home Reading in Geography* he complained that political geography was ' an insufficient term for the human aspects of geography.'

[17] It is interesting to notice that Mackinder's map of ' the natural seats of power ' was shown to the R.G.S. on January 25th, 1904, and Herbertson's map of ' the major natural regions ' was exhibited to the same Society on February 29th, 1904. The Oxford School of Geography was thinking in terms of *natural* units.

> *Who rules East Europe commands the Heartland :*
> *Who rules the Heartland commands the World-Island :*
> *Who rules the World-Island commands the World.*

In 1943 he reiterated his warning and asserted that his conception of the heartland was more valid than it was twenty or forty years ago. He then stated that ' all things considered, the conclusion is unavoidable that if the Soviet Union emerges from the war as conqueror of Germany, she must rank as the greatest land-power on the globe. Moreover she will be the power in the strategically strongest defensive position. The Heartland is the greatest natural fortress on earth. For the first time in history it is manned by a garrison sufficient both in number and quantity.' (*Foreign Affairs*, 21 (1943), p. 601).[19] Incidentally it was Mackinder who first gave vogue to the term man-power in assessing the strength of a nation.[20] He always laid emphasis on the importance of geography in politics and in 1931 he forecast that towards the middle of the twentieth century ' then will be the opportunity of the geographer-statesman, for geography must underlie the strategy of peace, if you would not have it subserve the strategy of war.' (*Scot. Geogr. Mag.*, 47 (1931), p. 335).

Those few British geographers who do not approve of the part played by members of their profession in planning can gain little comfort from a reading of Mackinder's writings. Mackinder often spoke of 'planning' long before that word had been debased by common use. He believed in the exercise of foresight, the real meaning of geographical planning, in politics and he was not ashamed to link it with idealistic conceptions. 'Unless I mistake,' he wrote, 'it is the message of geography that international co-operation in any future that we need consider must be based on the federal idea. If our civilisation is not to go down in blind internecine conflict, there must be a development of world planning out of regional planning, just as regional planning has come out of town planning. The statesman of the future must know something of the geographical natural regions if he is to build for stability. The peaceful readjustment of treaties to differential growth will postulate an informed and delicate geographical judgment. In the formation of such a judgment,' he added tartly, 'geomorphology cannot play the major part.' (*Scot. Geogr. Mag.*, 47 (1931), pp. 333–4).

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[18] Mackinder naturally resented any suggestion that he had helped to lay the foundation of Nazi militarism. ' It has been rumoured,' he said in 1944, ' that I inspired Haushofer, who inspired Hess, who in turn suggested to Hitler while he was dictating *Mein Kampf* certain ideas which are said to have originated with me. Those are three links in a chain, but of the second and third I know nothing. Whatever Haushofer took from me he took from an address I gave forty years ago—long before there was any question of a Nazi party.' (*Geogr. Journ.*, 103 (1944), pp. 132–3). *Democratic Ideals and Reality*, whose significance was not realised in England in 1919, was re-issued in America in 1942 and in the *Pelican Books* series in England in 1944. Its importance seems to have been more fully appreciated in America than in England. But it is possible to exaggerate Mackinder's influence in Germany and it must be remembered that James Fairgrieve's *Geography and World Power*, originally published in 1915, was translated by Haushofer's wife in 1925 and was also very widely read in Germany

[19] C. B. Fawcett wrote a valuable commentary on the heartland theory in ' marginal and interior lands of the old world,' *Geography*, 32 (1947), pp. 1–12. This paper is reprinted in H. W. Weigert, V. Stefansson and R. E. Harrison (eds.) *New Compass of the World* (1949), pp. 91–103. It should be remembered that Mackinder first postulated his theory exactly a fortnight before the Russo-Japanese war of 1904–5 began, a time of Russo-phobia in Britain. *See* also W. G. East ' How strong is the Heartland ? ' (*Foreign Affairs*, 29 (1950), pp. 78–93). This is a critical account of Mackinder's theory in the light of current events, but Professor East insists that Mackinder's ' geopolitical thinking is relevant to the task of winning the peace.'

[20] H. J. Mackinder, ' Man-power as a measure of national and imperial strength,' *National Review*, 45 (1905), pp. 136–43.

Democratic Ideals and Reality contains several references to planning and is itself an admirable example of the application of geographical thought to politics. Mackinder was speaking of the Heartland of Eur-Asia, an area now being rapidly developed by the Soviet Union, and the following passage (pp. 266–7) has a lively meaning for the statesmen of to-day :—'if only as a basis for "penetrating" this dangerous Heartland, the Oceanic peoples must strive to root ever more firmly their own organisation by localities, each locality with as complete and balanced a life of its own as circumstances may permit of. The effort must go downward through the provinces to the cities . . . The country-side in which the successful leaders visibly serve the interests of their weaker brethren, must be our ideal . . . There was a time when a man addressed his "friends and neighbours." We still have our friends, but too often they are scattered over the land . . . with too many of us, in our urban and suburban civilisation, that grand old word neighbour has fallen almost into desuetude . . . Neighbourliness or fraternal duty to those who are our fellow-dwellers, is the only sure foundation of a happy citizenship. Its consequences extend upward from the city through the province to the nation and to the world.'

The Philosophy of Geography. The seventh and last lamp is the philosophy of geography. Mackinder regarded geography as a philosophy and one of the humanities rather than as a science. 'To my mind,' he said, 'geography is not so much a science as a philosophy, an art, and a literature. Let me tell you my meaning by a musical analogy. There is the bass of geology ; there is the tenor of meteorology, there is the alto of agriculture, botanical, and zoological studies ; and there is the treble of social, economic and strategical studies. Now geography is a harmony of all four.' (*Geogr. Journ.*, 69 (1927), p. 214). On another occasion at Exeter in 1942, he described geography as 'an art of expression parallel to and complementary to the literary arts. It culls its data in fact from the geographical aspects of a number of sciences, just as Plato and Aristotle drew upon the physics and biology of their day. It integrates its conclusions from the human standpoint and so departs from the objectivity of science, for it ranges values alongside of measured facts. Hence " outlook " is its characteristic; it is a philosophy of Man's environment, Man himself—his body—being an element in that environment.' (*Geography*, 27 (1942), p. 129). In his little book on *The Teaching of Geography and History* (1914) he explained that he regarded geography, history and religious knowledge as ' the three Outlook subjects ' in which ' we learn where we are in space, in time, and before God.' (p. 14). Mackinder contrasted purely physical geography with his own conception of geography in these words—' You may devote your life to the study of a purely Physical Geography, or even of some one branch of that fascinating bundle of scientific applications, and may render good service in so doing, but, as an element in the culture of a nation, only its humane crown can give broad significance to Geography. It is as mental foundations for judgment in action that geography, history and literature have their function.' (*Geography*, 27 (1942), p. 128).

Because of Mackinder's firm belief in geography as a humane subject he often discussed its general value in education as a whole. ' I do not contemplate,' he wrote, ' that teachers for secondary schools, vitally important as they are in a democratic Society, should be the only output of the University teaching of geography. In its setting as a prime element in the new humanism, geography should be brought to bear on the training of those citizens, who, outside the technical callings, have in the past found in the classical education a way to eminence in Church and State.' (*Geogr. Journ.*, 86 (1935), p. 12). He saw that in the air age it was more than ever ' necessary that the next generation should contain men and women with a trained power of geographical imagination. Judgment in large affairs involves just that power of seeing vast masses of detail in orderly relationship and proportion which distinguishes the ideal geographer and the ideal historian, the one in regard to space and the other in regard to time, and both as they exist on this earth's surface. A worthy School of Geography of university rank should be a school of concrete philosophy.' (*Report Internatl. Geogr. Cong.* 1928 (1930), p. 311).

One of the most recurrent philosophical themes in Mackinder's writings concerns the unity of knowledge. Already in 1887 he deplored the fact that ' the greatest of all gaps lies between the natural sciences and the study of humanity,' and asserted that it was ' the duty of the geographer to build one bridge over the abyss.' (*Proc. R.G.S.*, 9 (1887), 145). In 1935 he again returned to what he called ' the bridge character of geography.' (*Geogr. Journ.*, 86 (1935), p. 7). He then said that the function of the philosophical geographer was ' to integrate and not merely to accumulate knowledge. His aim is so to digest the results of specialised research that they become available as a contribution to the assessment of values. Only so does it seem to me that science itself can be adapted to the bridging of the gap between science and values, which gap is admitted to be a danger to civilization.' (*op. cit.*, p. 10).

As Mackinder believed geography to be a humane and a literary subject he was very insistent that geographers should be precise and simple in their writing and should not employ technical jargon. In a discussion after a paper by Professor W. M. Davis on ' the systematic description of land forms,' Mackinder urged geographers to be very careful about the terms they used :—' if we are to induce writers on the humane aspects of geography to recognise real physical distinctions, we must seek to use such terms as will fit into literary English writing. I would plead that in the place of long foreign words we should give a precise sense to strong and, where possible, English words. It is no doubt easy, when you are talking to experts, to describe with precision by the use of technical jargon. It is a very hard thing to write a good plain English sentence. But if we adopt the easier method, and shirk the harder, then geographers are throwing away a great opportunity which lies before them. The opportunity is that of making precise the thought and the language of the practical man of affairs, whether he be politician, or writer, or merchant, or soldier.' (*Geogr. Journ.*, 34 (1909), p. 321). This appeal to geographers to write clear English was strongly supported by Herbertson at the same meeting, who said that ' the more I work at geography, the less I use morphological classifications and their terms ' and expressed his belief that ' we must employ, for most geographical purposes, characteristic physiological descriptions rather than purely genetic morphological terms.' The same advice to write precise and lucid English has been repeated on occasion by other Oxford geographers, including Professor Kenneth Mason, who in his inaugural lecture pleaded eloquently for clear and unadorned geographical writing. (*The Geography of Current Affairs* (1932), pp. 16–17). On one occasion Mackinder said that ' he would have the young geographer practised in the use of an almost Ruskinian, purely descriptive language, with terms drawn from the quarryman, the stonemason, the farmer, the alpine climber and the water engineer.' (*Scot. Geogr. Mag.*, 47 (1931), p. 334).

In a sense Mackinder was a poet as well as a philosopher for he saw that geography could be as sensuous as poetry. He knew how to write geography as literature and it is sad to reflect that so little contemporary geographical writing in the English language has approached the level set by the great master of the subject.

CONCLUSION

Sir Halford Mackinder will be remembered as a pioneer, not only in the art of teaching geography, but also in building a great adult education movement in England, in laying the foundations of the University of Reading, and in many other activities besides. I am certain that he will be regarded as the chief among the little band of men who fought and won for geography its rightful place in British education, but he himself was always the first to acknowledge the co-operation of many others in achieving that triumph, of Galton and Freshfield, of Chisholm and Herbertson, and especially of his old friend H. R. Mill. May I quote Dr. Mill's own words about Mackinder ? He raised geography 'from a science to a branch of philosophy and carried it forward to enlighten the practical affairs of daily life.' (*Geogr. Journ.*, 86 (1935), p. 13).

This month sees the jubilee of the opening of the first British School of Geography at Oxford. British Geography owes a heavy debt to the Royal Geographical Society which paid out of its own funds over £11,000 to Oxford and £7,500 to Cambridge, and when smaller grants to the Universities of Manchester, Edinburgh and Wales are added, a total of £20,000 to further the establishment of geography as a university subject.[21] It is not often that so small a sum of money achieves so much. Nevertheless it was courageous on the part of the Society to spend a substantial proportion of its funds on university education. A second debt is owed by British Geography to Oxford for having the imagination not only to found the first modern Readership in the subject, but also to start the first university School of Geography, and for that School's pioneer work in the first fifteen years of this century. During that time many of those who, like Roxby, carried geography to other universities were being trained and inspired by Mackinder and Herbertson at Oxford.

To-day, we are concerned with Mackinder as a teacher and it is to him that British Geography owes its greatest debt. It was indeed fortunate that the revival of geography in Britain was brought about by Halford Mackinder, who was not only a genius but also a master of the English language. He lighted seven lamps of geography that still burn brightly in the three universities in which he taught. We do our utmost to maintain his tradition in Oxford where he first began to rekindle the ancient fires of geography. Nevertheless, there are places of learning in which some of Mackinder's lamps have not yet been lit, while in others they flicker feebly and give but little light. But, if I may adapt a famous sentence, Mackinder 'lighted such a candle, by God's grace, in England, as I trust, shall never be put out.' It is our pious duty, in this Association, of which Sir Halford Mackinder was the co-founder, so to keep alight his seven lamps that they may continue to illuminate the path of geographical learning for the rising generation in British schools and universities.[22]

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[21] H. R. Mill, *The Record of the Royal Geographical Society*, 1830–1930 (1930), p. 251.

[22] The writer is indebted to Sir John L. Myers for much help and encouragement in the preparation of this paper.

BIBLIOGRAPHY OF PRINTED WORKS

BY HALFORD JOHN MACKINDER

The bibliography is arranged under the four headings of books, school text-books, papers and miscellaneous items. Each group is arranged in order of publication. It is hoped that the list is complete, but the author's writings are scattered in many periodicals and some items may have escaped notice. Contributions to discussions have not been included.

BOOKS, PAMPHLETS AND CONTRIBUTIONS TO BOOKS

1890. *University Extension : Has it a future?* Written jointly with M. E. Sadler. 1st and 2nd eds. 1890. Revised and enlarged in 1891 under the title *University Extension, Past, Present and Future.*

1902. *Britain and the British Seas.* 1st ed. 1902, 2nd ed. 1907.

1903. *The Nation's Need.* ed. Spenser Wilkinson. Chapter x (pp. 225–60) by H.J.M. is an essay on ' higher education ' in which he argued that ' every local university must have its sphere of influence around it ' and that they ' must become the foci of local patriotism.'

1905. *Seven Lectures on the United Kingdom.* Prepared for the Visual Instruction Committee of the Colonial Office and published in six different editions for various parts of the Empire between 1905 and 1909.

1906. *Money-Power and Man-Power.* A political pamphlet describing ' the underlying principles rather than the statistics of Tariff Reform.'

1906–7. *Lectures on Empire* by M. E. Sadler and others includes a lecture (pp. 32–42) by H.J.M. ' on thinking imperially.'

1908. *The Rhine : its Valley and History.*

1910. *India. Eight Lectures.* Prepared for the Visual Instruction Committee of the Colonial Office and also published in a ' lecturer's edition.'

1914. *The Teaching of Geography and History : a study in method.* 1st ed. 1914, 2nd ed. 1918.

1914. *The Modern British State : an introduction to the study of civics.* 1st ed. 1914, 2nd ed. 1922.

1916. *Constitutional Problems : speeches at a conference held between representatives of the Home and Dominion Parliaments,* on July 28th and August 2nd, 1916, at the House of Commons, by H.J.M., Viscount Bryce and others.

1919. *Democratic Ideals and Reality. A study in the politics of reconstruction.* This book was re-issued in the U.S.A. in 1942 and in England in the *Pelican Books* series in 1944.

1922. *Cambridge History of India,* Vol. I, *Ancient India,* ed. E. J. Rapson, contains Chapter 1 (pp. 1–36) by H.J.M. on ' The Sub-continent of India.'

SCHOOL TEXT-BOOKS

1906. *Our Own Islands.* 1st ed. 1906, 19th ed. 1935.

1908. *Lands Beyond the Channel.* 1st ed. 1908, 14th ed. 1928.

1910. *Distant Lands.* 1st ed. 1910, 8th ed. 1923.

1911. *The Nations of the Modern World.* 1st ed. 1911, 5th ed. 1921.

1914. *Our Island History.* 1st ed. 1914, 4th ed. 1922.

The above five books, all published by George Philip and Son, belong to a series called *Elementary studies in Geography and History.*

1924. *The Nations of the Modern World.* Vol. II. One edition only. This book was also issued for the general public under the title *The World War and After* and had one edition (1924).

PAPERS.

1887. ' On the scope and methods of geography.' *Proc. R.G.S.*, 9 (1887), pp. 141–60. Read at an evening meeting of the R.G.S., on January 31st, 1887. The paper was followed by a discussion on February 14th, 1887.

1889. ' The physical basis of political geography.' *Scot. Geogr. Mag.*, 6 (1890), pp. 78–84. Read at a meeting of the Scottish Geographical Society, Edinburgh on December 18th, 1899.

1895. ' Modern geography, German and English.' *Geogr. Journ.*, 6 (1895), pp. 367–79, and also printed in *Scot. Geogr. Mag.*, 11 (1895), pp. 479–511. Presidential address to Section E (Geography) at the Ipswich meeting of the British Association on September 12th, 1895.

1900. ‘A journey to the summit of Mount Kenya, British East Africa.’ *Geogr. Journ.*, 15 (1900), pp. 453–76. Read to the Royal Geographical Society on January 22nd, 1900. H.J.M. also gave a shorter account of the same journey in a paper read to the Alpine Club on March 6th, 1900 and entitled ‘The ascent of Mount Kenya,’ *Alpine Journal*, 20 (1900–01), pp. 102–110.

In *Geogr. Journ.*, 21 (1903), pp. 195–8 there is a letter by H.J.M. on ‘Captain Dickson’s map of the Kenya and Kitui Districts in which he severely criticised the cartographic methods employed in Captain Dickson’s map published to illustrate the latter’s paper on ‘the eastern borderlands of Kikuyu’ in *Geogr. Journ.*, 21 (1903), pp. 36–9. H.J.M. concluded his letter by asking ‘is it too much to expect that geographical surveyors and map-makers should have mastered at least the outlines of the science of land-forms ? The artist who depicts the human form finds it necessary to know so much of anatomy as is needed to explain the contours of the body.’

1903. ‘Geography in education.’ *Geog. Teacher*, 2 (1903), pp. 95–101. Read at a joint meeting of the Geography and Education sections of the British Association held at Southport on September 14th, 1903 as part of a discussion on geographical education.

1904. ‘The development of geographical teaching out of nature study.’ *Geog. Teacher*, 2 (1904), pp. 191–7, and also printed separately as a pamphlet in a slightly different version in 1908 by G. Philip and Son. Read to a conference arranged by the Technical Education Board of the L.C.C. and the Geographical Association in January, 1904.

1904. ‘The geographical pivot of history.’ *Geogr. Journ.*, 23 (1904), pp. 421–37. Read to the Royal Geographical Society on January 25th, 1904.

1905. ‘Man-power as a measure of national and imperial strength.’ *National* Review, 45 (1905), pp. 136–43. A lecture given under the auspices of the Compatriots’ Club on February 3rd, 1905, Major Sir Francis Younghusband in the chair.

1907. ‘The advancement of geographical science by local scientific societies.’ *Naturalist* (1908), pp. 70–4, and in *Report Brit. Ass., Leicester*, 1907 (1908), pp. 33–6. Address given to the conference of delegates of scientific societies at the meeting of the British Association at Leicester in August, 1907.

1908. ‘Geographical conditions affecting the British Empire, I. The British Islands.’ *Geogr. Journ.*, 33 (1909), pp. 462–79. Read to the R.G.S. on March 30th, 1908. [No further part of this projected series was printed.]

1911. ‘The teaching of geography from an imperial point of view and the use which could and should be made of visual instruction.’ *Geog. Teacher*, 6 (1911), pp. 79–86 and also printed in *Report Imperial Education Conference Cd.* 5666 (1911), pp. 47–57. Read to the Imperial Education Conference arranged by the Board of Education.

1911. ‘The strategical geography of the near East.’ *Journal of the Royal Artillery*, 39 (1912–13), pp. 195–204. An extempore address given at the Royal Artillery Institution, Woolwich on December 14th, 1911.

1913. ‘The teaching of geography and history as a combined subject.’ *Geog. Teacher*, 7 (1913), pp. 4–19. Read to the Geographical Association to open a discussion on January 9th, 1913.

1916. ‘Presidential Address to the Geographical Association, 1916.’ *Geog. Teacher*, 8 (1916), pp. 271–7. Delivered at the annual meeting of the G.A. at University College, London, on January 6th, 1916.

1916. ‘Some geographical aspects of international reconstruction.’ *Scot. Geogr. Mag.*, 33 (1917), pp. 1–11. A lecture given to a meeting of the Glasgow School of Social Study and Training in Glasgow University on November 10th, 1916.

1917. ‘Discussion of the resolutions of the five associations.’ *Geog. Teacher*, 9 (1917), pp. 46–51. Address given at the annual meeting of the Geographical Association on January 5th, 1917. The joint conference between the five Associations and the British Academy was known as the Council of Humanistic Studies.

1921. ‘L’Envoi. A note on the future of Glasgow.’ *Scot. Geogr. Mag.*, 37 (1921), pp. 77–9. A note to conclude a special number of the *Scot. Geogr. Mag.* devoted to the city of Glasgow.

1921. ‘Geography as a pivotal subject in education.’ *Geogr. Journ.*, 57 (1921), pp. 376–84. Read at a meeting in the map-room of the R.G.S. on March 18th, 1921.

1925. ‘The English tradition and the Empire: some thoughts on Lord Milner's Credo and the Imperial Committees.’ *United Empire*, 16 (1925), pp. 724–31. This also appeared in *South African Monthly Supplement*, No. 13 (1925), p. 9, under the title ‘Some thoughts on Lord Milner's’ “Credo.” The English tradition and the Empire.’ Read to a meeting of the Royal Colonial Institute on November 10th, 1925.

1928. ‘The content of philosophical geography.’ *Report of Proceedings of the International Geographical Congress*, 1928 (1930), pp. 305–11. Presidential address to Section D (Human Geography) of the International Geog. Congress at Cambridge on July 19th, 1928.

1928. ‘Two suggestions for the early historical geography of England.’ *Report of Proceedings of the International Geographical Congress*, 1928 (1930), pp. 410–11. Abstract of a paper to Section E (Historical) of the International Geographical Congress at Cambridge on July 20th, 1928.

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1935. ‘Progress of geography in the field and in the study during the reign of His Majesty King George the Fifth.’ *Geogr. Journ.*, 86 (1935), pp. 1–12. A Jubilee address delivered at the R.G.S. on May 13th, 1935.

1937. ‘The music of the spheres.’ *Proc. R. Philosoph. Soc. of Glasgow*, 63 (1938), pp. 170–81. Address given to the Royal Philosophical Society of Glasgow and the geographical section on October 27th, 1937.

1942. ‘Geography, an art and a philosophy.’ *Geography*, 27 (1942), pp. 122–30. Address given to the spring conference of the Geographical Association held at the University College of the South-West at Exeter in April, 1942.

1943. ‘The round world and the winning of the peace.’ *Foreign Affairs*, 21 (1943), pp. 595–605. This paper was reprinted, with some slight alterations, as one chapter (pp. 161–73) of H. W. Weigert and V. Stefansson's *Compass of the World. A Symposium of Political Geography* (1944).

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References are given below to two speeches, which are full of interesting remarks about Mackinder's career.

1944. Speech made on receiving the Charles P. Daly Medal awarded by the American Geographical Society on March 31st, 1944. *Geogr. Journ.*, 103 (1944), pp. 132–3.

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MISCELLANEOUS

1886–88. The following syllabuses of Oxford University Extension lectures by H.J.M. were published as pamphlets. ‘The New Geography’ (1886). ‘The World—the battlefield of wind, water and rocks’ (1886). ‘Wealth and Wages’ (1886). ‘History and Geography of International Politics’ (1888). ‘Physiography’ (1888). ‘Syllabus of home reading in geography’ (1888).

1889 and onwards. H.J.M. with J. Scott Keltie and E. G. Ravenstein was editor of a series called *The World's Great Explorers and Explorations*.

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THE CULTURAL HERITAGE OF BAS LANGUEDOC, FRANCE

SWANZIE AGNEW*

FRANCE is acclaimed by many as best expressing the spirit of European civilization. She might never have assumed this leadership in western culture were it not for the happy chance that her country opens on to the Mediterranean along the broad arc of the Gulf of Lions. There, in the lands of Roussillon, Bas Languedoc and Provence, France lay open to Greek and Roman civilizing forces and the rich cross-currents of Mediterranean life that followed in the succeeding centuries.

Though these southern provinces of France in climate, economy and way of life are thoroughly Mediterranean, yet their link with northern and western Europe by way of the Rhône-Saône " corridor " and the Carcassonne " gate " draws them closer to the continental body of Europe than is possible for the mountain-isolated peninsulas of Italy and Iberia. Hence any cultural movement arising in the Mediterranean basin and touching the southern shores of France would eventually find its way to the Paris Basin, there to meet and to influence substantially the modes and customs of northern origin.

That Mediterranean influences could still be forceful so far north of their source may be explained by the fact that the broad coastal plain of Bas Languedoc in particular and the adjacent riverine lands of the Rhône offered spacious ground (rare in the Mediterranean) where cultural and economic movements of the earlier civilizations could become firmly established in a familiar environment before being transmitted northward to a different environment and to men alien in ethnic stock and historical tradition.

Southern France first became associated with a universal Mediterranean culture when the Greeks, reaching out from the east, established trading-posts along the coast. The stations set up at Avignon, Marseilles and Agde were among the most important of their assembly points, since they tapped the plains of Bas Languedoc and the Rhône lands—then as now chief centres of production.

Had it not been for the featureless lagoon-fringed coast of the Gulf of Lions, the Greeks might have established other stations for trade. Lack of sheltered anchorage and lack of defensive sites prevented such a development. The sites of Agde and Avignon, the first in the lee of a volcanic hill and the second on a bluff overlooking the Rhône, are among the few sites in the plain which offered the conditions demanded by Greek colonists. Marseilles with its island-studded harbour backed by a small hill-bound plain was more in keeping with Greek tradition. But Marseilles is a Provençal town and belongs rather to the group of Greek trading stations that were spaced along the rugged Riviera coast. That Marseilles outstripped all Greek settlements in the south of France is explained by her command of the Rhône lands while yet enjoying the advantages of a typical Greek harbour site—a protected haven set among hills.

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The Greeks probably stimulated production in southern France and by so doing raised the cultural level of the indigenous people. It is thought by some that the Greeks brought with them and introduced to southern France the cultivation of the olive and the vine. On these two crops the rural economy has long depended and the wealth derived from them has been a factor in promoting and maintaining city growth.

Following on the Greeks came the Romans who as landsmen quickly appreciated the potentialities of these plains. Along the coastal plain land communication could be established between Rome and her productive Iberian colonies—and this was soon brought about by the building of a paved road that came to be known as *Via Domitia*. All the main towns of the Bas Languedoc Plain save Montpellier owe their initial growth to the passage of this road. That they expanded and grew prosperous in the Roman period was due not only to their function as revictualling stations but also to the fertility and productiveness of the land that lay around them. Grain, oil, plant essences, hides and skins, and salt were among the main commercial products of the time.

Under Rome commerce flourished. Goods were moved by road and by barge down the river to the point where they could be transhipped to coasting vessels for their transport back to Rome or to other parts of the Empire.

Road traffic was more important than river traffic, therefore, the assembly ports were located not on the coast but upstream on the main rivers where the road crossed by bridge. Hence the position of the Roman emporia as bridge-head ports.

Arles on the Rhône at the head of the delta, tapping north-south river traffic and east-west road traffic, was the chief port of southern Gaul. Narbonne, gathering the trade of northern Iberia, Roussillon and the Garonne Basin, served the western region. The site of Narbonne, but not the situation, was less advantageous than that of Arles. Narbonne in the Roman period stood on the inner shore of the Sigean lagoon into which a dying distributary of the river Aude emptied itself. The sea approaches to Narbonne were handicapped by the rapidly shallowing lagoon, but the necessity of maintaining a point of shipment where the two major streams of traffic met from south and west demanded the upkeep of a port. This may explain the succession

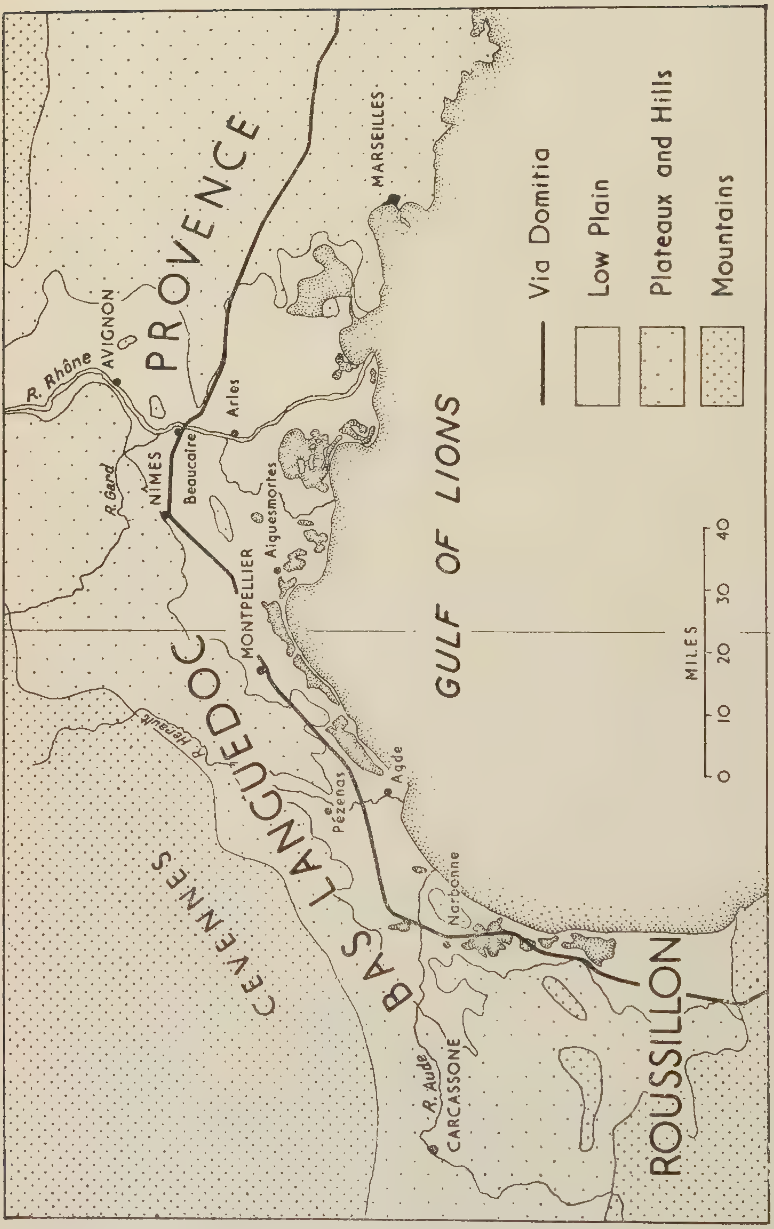

Fig. 1.—Bas Languedoc.

of outports to Narbonne, each in turn seeking deeper water as its predecessor became embedded in silt.

The position of the region as a bridgeland between Rome and her outermost frontiers in the west gave the towns added prestige as military bases and administration headquarters. So closely was the region linked to the affairs of the western Empire that Pliny called Narbonensis not so much a province as an extension of Italy itself.

The importance of the towns and the degree of urbanization in that early period can be judged by the wealth of Roman civic buildings still standing in these southern cities. One cannot but wonder whether the magnificent architecture here displayed may not have served France in later centuries as a stimulus to fine and durable building.

So closely was the province bound to Rome that when Christianity gained devotees in Rome the doctrine soon spread to the bridgeland. The earliest churches outside the Mediterranean sphere were founded in the second century at Lyons and Vienne on the Rhône river. Other church foundations followed in the third and fourth centuries, among them were the churches placed in Marseilles, Avignon, Nîmes and Narbonne. None of these early foundations survive but there are many fine examples of Romanesque architecture to attest the early establishment of Christianity in this part of France.

After the fall of Rome, when the spark of civilization became invested in the Church, the association between Papal Rome and France by way of the southern bridgeland was not broken. Again one becomes aware of the bridgeland as a mere extension of the heartland when one considers the shift of the papacy out of Rome to Avignon between the years 1309 and 1377.

Christianity did not go undisputed here. Bas Languedoc lies too near the Mediterranean and the adjacent land of Spain to have escaped the attention of the Moslems. Narbonne, that strategic crossroad, was held for forty years or more ; elsewhere the Moslem occupation was more fitful and erratic. The uncertain hold of the Arabs in this region may be partly accounted for by geography. The Arabs did not settle easily in these extensive grainlands that do not lend themselves to the irrigated *vega* or garden type of cultivation. And an even greater consideration than this was the fact that the harbourless coast did not suit their piratical habits. The rock-bound coves of Provence were more to their liking, and from there they could organize raiding parties up the Rhône and the rivers of Bas Languedoc. This threat of pillage and the constant menace of attack from the sea caused the settlements near navigable rivers and within reach of the sea to be fortified. The outcome of this need for protection was that in the smaller sea-coast villages the inhabitants looked to the Church for security and therefore fortified it in the military traditions of the time (e.g., Les Saintes Maries de la Mer, and Agde).

Threatened by Moslem dominance the Christians of Bas Languedoc readily lent their support to the Crusades. From the shores of Bas Languedoc two sea crusades were dispatched under the leadership of

St. Louis. Since none of the coastal settlements were suitable for a base and port, Louis caused the walled city and port of Aiguesmortes to be built. That it was necessary to build a port is indication enough of the dearth of natural harbours along this featureless coast. But the site of the port among the lagoons of the Rhône delta was ill-chosen as the name (*Aiguesmortes*—dead waters) implies. It could not compete with better-sited ports such as Beaucaire on the Rhône or Marseilles : soon after it had served its purpose as a military port of embarkation for the Levant, it lapsed into obscurity and it remains to-day enclosed within its walls, a museum piece of medieval fortress-planning.

Though Bas Languedoc suffered as a marchland and frontier between the Moslem and Christian worlds, it eventually gained from its vanguard position. The region was not sufficiently long occupied for the Moslem civilization to become impressed on the land as was in Spain. However, proximity to the Arab dominated Mediterranean allowed the dissemination of the finer attributes of their civilization. Arab learning, particularly in the field of medicine, was carried by the Jews in the twelfth century to the rapidly growing city of Montpellier. A school of medicine was set up, followed soon after by a school of law under the initiative of Lombard jurists ; these together formed the nucleus of the University of Montpellier which was granted its charter by papal bull a century later (1289).[1] Since then Montpellier university —alma mater to Rabelais himself—has figured among the foremost seats of learning on the continent.

While Bas Languedoc benefited culturally from the contact with the Arab civilization, alien domination of the sea routes prevented any extensive trade with the Levant which was then the focus of European trade and commerce. With the displacement of Arab power after the Crusades, Bas Languedoc could once again identify itself with a Mediterranean world whose unity had been submerged since the fall of Rome. The breaking of Arab sea power and the opening of the sea lanes to the Levant allowed other lesser cities to compete with Venice in oriental trade and commerce. In striving for " a place in the sun " the lowland cities of Bas Languedoc were greatly handicapped by the lack of adequate harbours. By constant river dredging and by building canals, the cities kept abreast in the great commercial race of the medieval period. Though Bas Languedoc could not offer the harbour facilities comparable to those of Marseilles, Genoa or even Venice, yet her towns commanded an immediate hinterland far richer than any of these save, perhaps, Venice. The necessity of having regional outlets for the varied agricultural products and manufactured goods was the urge that drove the commercial cities of Bas Languedoc to maintain their inefficient little ports at such cost and labour to themselves.

The wealth of industry in Bas Languedoc in the middle ages, which lasted until the industrial revolution drew factories and workshops to the northern coalfields, was largely the outcome of having, within the short span of 55 miles between the Cevennes and the sea, four very distinct environments whose economies were closely inter-related.

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[1] The University of Montpellier can be traced back to a foundation in 1125 and a charter of 1141. This makes it the oldest in France ; the University of Paris began in 1150.

The first of these is the immediate coast where marsh and lagoons are hemmed in to seaward by sand-dunes. This desolate stretch of coast was then as now not without industrial significance. The lagoons form natural salt pans and with a little artificial aid from man can be made to yield large quantities of salt. From a very early period salt has been a commodity of trade in this area. A second source of trade is dried fish, obtained in abundance on the coastal shelf of the Gulf of Lions and from those *étangs* or lagoons which have a sea outlet.

From the lagoon and marsh edge the plain slopes gently inland for a distance of five to ten miles. The gentle relief of the plain, its easily worked soils and the favourable climate account for the rich agriculture of this part of Bas Languedoc. At the present day the economy is geared to the monoculture of the vine. But in the past, grainlands, river meadows, vineyards, olive-groves, mulberry stands, and almond and peach orchards gave variety to a morphologically monotonous landscape. The wide range of crops allowed pursuit of a number of domestic industries besides the ordinary commerce in crop surplus. Production of household oil and the making of soap depended on the olive, the vine gave wine and spirits, from the grape residue fertilizers were made and the deposition of tartaric acid crystals in the inside of wine vats yielded a valuable supply of cream of tartar. Wine was also the basis of *verd de gris*, a green powder obtained by the chemical action of wine on copper and used when mixed with oil as an artist's colour. Choice wines, cream of tartar, and *verd de gris* commanded a wide market throughout Europe.

The plain, save along the river re-entrants, is nowhere wide and within five to ten miles comes to an abrupt halt along the edge of a scarp that bounds the next environmental region—that of the limestone plateaux (180–400 metres). These plateaux, covered with a grey-green scrub known locally as *garrigue*, have enclosed within them better-watered basins where the rural economy in the past, as now, was a repetition of that of the coastal plain.

The great stretches of "garrigue" offered certain economic opportunities even though they were not fit for cultivation. In the first place the scrub gave winter pasturage for the flocks of sheep which then formed an integral part of the economy. Wool and skins became the basis for a very considerable textile and leather industry. Tannin from an oak, common in the garrigue, and dyes from herbs and the oak beetle made the industries even more self-sufficient. Washing preparations, especially in the preparation of wool and woven cloth, were made the cheaper because of the locally produced soap from olive oil and animal fats.

The only poor endowment in the industrial organization was water. In the coastal plain and limestone plateaux the streams are few in number and intermittent in régime. But in the fourth environmental region, that of the Cevennes mountains, water is abundant, for altitude gives greater rainfall and the impermeable schist and gneiss allow little underground seepage.

It was the towns and hamlets of the mountain edge or those located near one of the larger perennial rivers in the plains that specialized in the textile and leather industries. With the introduction of the mulberry in the fifteenth century, silk spinning and weaving further expanded the textile industry, especially in and around Nîmes.

While the upland towns and hamlets expended their energies in domestic textile and leather industry and the lowland villages produced the crops for agricultural industries, the main cities of the coastal plain organized the sale and export of the manufactured goods. Some towns acted as entrepôts—the assembly points of raw materials or finished goods to which buyers and sellers from all over Europe and the Mediterranean gathered. The fairs held for this purpose were among the most important in the medieval world. Beaucaire on the Rhône served the east, while Pézenas on the Herault served the western part of industrial Bas Languedoc. Beaucaire tapping the hinterland of northern Europe by way of the Rhône-Saône corridor and having free access to the Mediterranean downstream was by far the greater of the two centres.

Other cities specialized in the distribution of the goods and such cities as Montpellier depended for their prosperity on the great merchant princes, who, commanding fleets of their own, carried the Bas Languedoc goods to the Levant and to west European ports. Towns like Nîmes, with no access to the sea—but with adequate labour and finance at their disposal, became highly industrialized and organised the domestic hamlet industries of their neighbourhoods.

The surviving medieval buildings of picturesque design and the magnificent eighteenth-century residences and ornamental gardens recall the past commercial prosperity and the part that Bas Languedoc played in the later flowering of Mediterranean culture.

The opening of the new world, the shift of industry to the coalfields of Europe pulled the focus of European activity away from the Mediterranean basin to the countries surrounding the North Sea.

Already before this South France had become subject to Paris, the heartland of France had moved away from the Mediterranean lands to the Paris Basin. The civilisation of the Latin south and the Teutonic north were welded together in the central authority and cultural leadership of Paris. The Rhône-Saône corridor that carried the civilizing forces northward to Paris now reversed its rôle and served the north as the avenue by which the northern cultural stronghold could dominate the south. In effect the north has reached down the Rhône-Saône routeway to draw a segment of the Mediterranean lands into the continental body. Alienated, in a sense, from the universal culture of the Mediterranean basin, Bas Languedoc and the neighbouring lands have reverted to the position they held in the early Roman period—that of a storehouse and food-producer for a distant heartland.

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GEOGRAPHICAL AND HISTORICAL FACTORS ASSOCIATED WITH THE INDUSTRIES AND OCCUPATIONS OF CHESTER

J. T. Scott*

CHESTER, with a population approaching 70,000 (with suburbs), is the second largest town in Cheshire. Its position at the head of the Dee estuary and controlling a crossing point of the river made it certain to fulfil an important function in the past. It provided opportunities not merely for centralised regional administration but also for the defence of the whole North West Welsh border region. The importance of Chester began with the occupation of the site by the 20th Roman Legion in approximately A.D. 75. The site had earlier been associated with an insignificant British village. Various factors influenced the building of DEVA and many of these have persisted throughout the city's chequered history.

The Site of Chester

A ridge of hard Bunter sandstone, the most westerly of three such ridges, passes from north to south approximately through Aldford, Eccleston, Chester and Whitby. The sandstone dips uniformly at low angles towards the east giving a steep westward-facing escarpment. The river Dee, after flowing below the escarpment for some miles, cuts across it at Chester in a narrow, steep-sided valley excavated entirely out of the rock (Fig. 1). This sandstone ridge formed an " island " above the impenetrable salt marshes of the lower Dee and the wet, densely forested boulder clay belt of Cheshire and explains the early ford, the limit of navigation, the foundation for the Old Dee Bridge and the easily defendable bluff above the river (the site for the Castle). In view of the marshy and forested nature of the terrain, sea communications were very important to the Romans who, recognising the proximity to the Welsh hills and the command of one of the few routes into Wales, established a legionary headquarters. With the camp came roads running north-east, south-east (Watling Street), and west to Segontium (Caernarvon). The later economic development of the city has been greatly influenced by its function as a centre of communications which is a recurrent theme in its history.

After the departure of the Romans, Chester experienced many vicissitudes with depopulation alternating with rapid growth, until by the time of the Domesday Book it was ranked as the sixth wealthiest city in North England. During the early Middle Ages, Chester became

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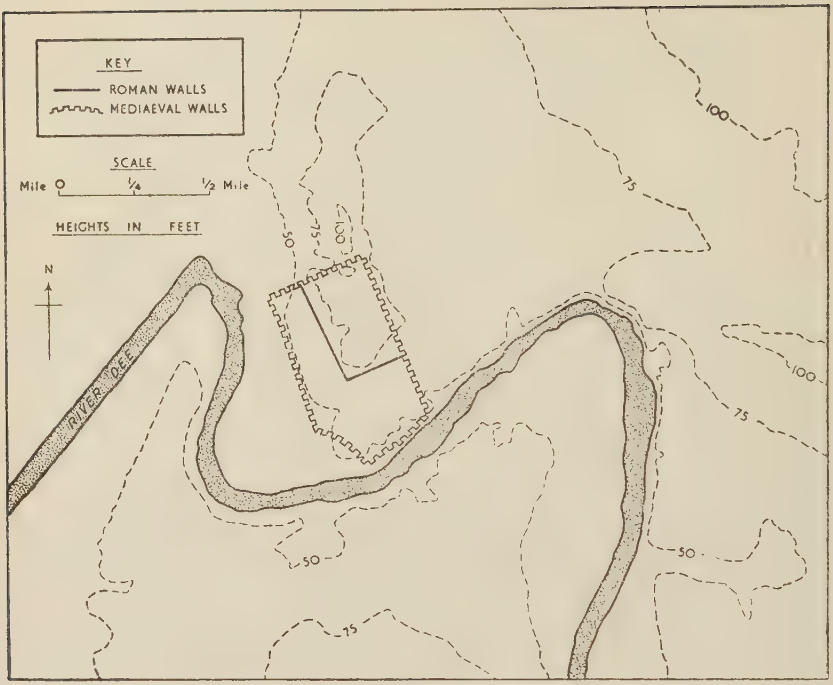

Fig. 1.

the port for trade with Ireland, but silting and impoverishment resulting from the Civil War caused its decline. (Liverpool, on a larger river, leading to a more immediate hinterland, was soon to take advantage of this, and its ability to satisfy the 18th and 19th century demands led to its development as one of Britain's major ports). Several industries—tobacco, timber and canvas—bear witness to Chester's former port status. The city remained in its partial eclipse until the railway era when both markets and raw materials became more accessible. The many factories, located near the railway bear witness to this influence (Fig. 2).

FACTORS ASSOCIATED WITH PRESENT-DAY OCCUPATIONS IN CHESTER

- (*a*) One-time port functions.
- (*b*) Route centre.
- (*c*) County town.
- (*d*) Tourist industry.
- (*e*) Proximity to industrial Lancashire and the Midlands.
- (*f*) Attraction of its quiet atmosphere to industrial genius and capital.

Four companies remain to reflect Chester's seaport functions. Two of these are concerned with tobacco and employ together about 250—one being a branch of the Imperial Tobacco Company. Another

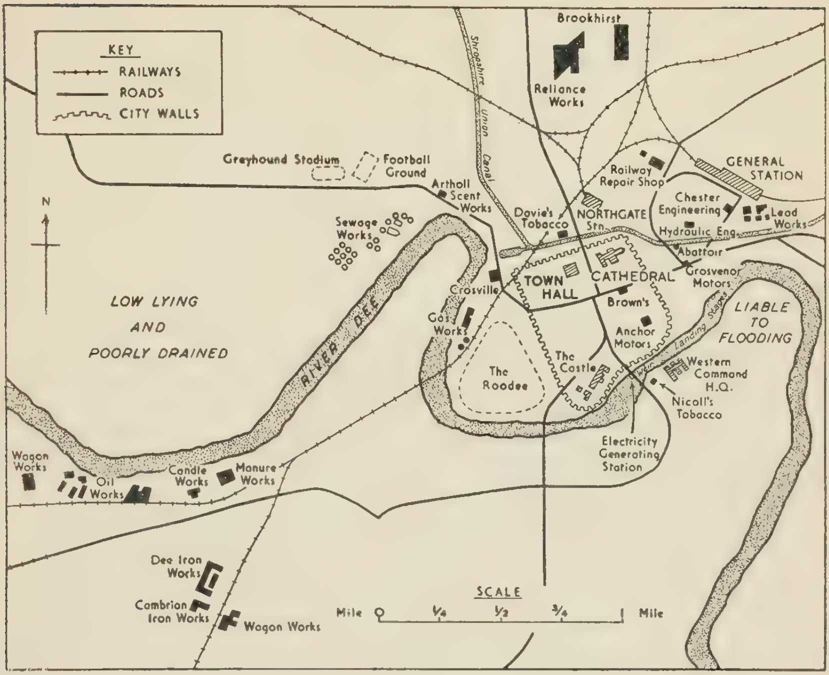

Fig. 2.

is concerned with timber, whilst the last is a tent and marquee manufacturer and hirer founded originally to provide tarpaulins and sails for the sailing ships that used to come up the river to the city.

Chester has two railway stations which employ over 1,000 as clerical staff, porters and in repair workshops. Here is the headquarters of the district stretching from Frodsham and Birkenhead to Holyhead and Pwllheli, including numerous branch lines in Wales. The traffic is largely passenger and much importance is attached to the Irish Mail calling here. It is noteworthy that Chester handles much of the shipping traffic from Birkenhead. The establishment of the headquarters of the Crosville Motor Services in Chester in 1906, serving Cheshire, South West Lancashire, North Shropshire and North and Central Wales also bears witness to Chester's value as a route centre. More than 1,000 people are engaged as drivers, conductors, clerks and machine repairers.

Chester is predominantly a city of shopkeepers. Within the city are high-class shops such as Browns (employing over 200) and Bradleys (over 800). These and many others serve not only Cheshire but the rapidly expanding industrial area of North East Wales and the Ellesmere Port, Stanlow (Shell) area. One would expect to find several seed firms, an abattoir, a beast market and dairies in the county town of a rich agricultural county and Chester is no exception. There are large car repairers and sales companies serving much of the county and

North Wales. There is an extraordinary high proportion of people engaged in local and government administration and in banking.

Chester's position with respect to the densely populated areas of South Lancashire, Manchester, Liverpool and the Midlands has made it a source of attraction for the day visitor. The river, with its flourishing boat-hiring concerns, the zoo (20,000 have visited it in one day) and the antiquities are most popular. For the more permanent visitor there are four hotels with more than 75 bedrooms, together with many small inns and innumerable cafes. The large number of foreign visitors bears witness to Chester's historical significance.

The attraction of shop and office work to female labour has created a serious labour shortage in the many engineering industries within and around Chester (the rapid expansion of Technical School facilities within the city should improve the chances of local recruitment in the immediate future). In certain respects Chester is an off-shoot of the Lancashire and Yorkshire electrical and industrial belt, as is exemplified by the dependence of many firms on materials from, and markets in, this area. A curious development is the Arthol Scent Works which is intimately related to the Merseyside Soap industry although the central position with reference to Liverpool and Warrington indicated its establishment here. The Lead Works, employing 260, originally obtained its raw material from North Wales mines. Its products serve the Potteries, Lancashire and the Midlands.

Quite apart from the usual reasons for the establishment of industries, is one which is very common in Chester. Many firms started here because the founders liked the quiet peaceful atmosphere in Chester, or because they were Cestrians who refused to move into the grimy industrial areas, and so settled here with their skill and capital—this reason is prominent in the two largest engineering concerns employing together over 3,000. The Reliance Works of Williams and Williams, produces metal windows, doors, patent glazing, sheet metal work and steel equipment of numerous kinds. The founder of the Brookhirst Electrical Switchgear works considered Chester "a reasonable place to live, offering pleasing conditions of living to his workers." Rustproof Metal Windows, Ltd., (employing over 500) and the Hydraulic Engineering Company, have both grown from small local concerns. Pratt, Levicks produces precision-ground steel and non-ferrous cylindrical rods and bars. Whilst this "personal" factor is prominent in the original location of such concerns in Chester, it must be realised that the improvement and cheapening of transport (with road) and power (electricity) facilities has been no small contributory factor.

THE POSITION OF THE INDUSTRIES

There are three distinct districts.

(*a*) Within the walls. Here are the majority of shops, with their famous "Rows," banks and offices. The full use of land, combined with overcrowding, has excluded the establishment of any large factories.

(*b*) A belt to the north of the walls stretching from the Dee in the west to Boughton in the east. This area has offered :—

1. Comparatively cheap and flat land, some of which, in Sealand, has been reclaimed.
2. Roads and railways leading to and from the raw materials and markets in Merseyside and Lancashire. This is important for road transport in view of the need to avoid going through the narrow and congested streets of the city.
3. The Shropshire Union Canal runs through the northern part of the city and has attracted certain works.

(*c*) The Saltney area. Flat, fairly cheap land with road, rail and river transport (until the beginning of the Second World War) served to neutralise the handicap imposed by the fact that there are only two road bridges across the river from Chester. Here are situated bone-manure works, two iron works, a chain manufactory, Rustproof Metal Windows, a glass works, the No-Nail Box Company and many others.

The large numbers employed in the distributive trades indicates Chester's ideal suitability in this age of motor transport. These numbers are likely to increase as the new Shell Refinery at Stanlow and the Atomic Plant at Capenhurst reach full production and in the meantime the narrow streets, scenes of much congestion throughout its turbulent history, will continue to accommodate the ever-increasing flow of pedestrian and motor traffic.

CORRESPONDENCE

TECHNIQUES IN LOCAL FIELD STUDIES

During the discussion following the symposium on " Techniques in Local Field Studies " at the recent Annual Conference, questions were raised but left unanswered owing to lack of time. It may be of some help to younger teachers if replies are suggested.

One speaker from the audience referred to the fact that, when given freedom to explore, collect specimens and ask questions, many of the younger secondary school children do not confine themselves to things geographical. How should a teacher regard the miscellany, ranging from bits of concrete to frog-spawn, brought in by eager youngsters ? How can a geography teacher deal with questions which call for detailed knowledge more than encyclopaedic in range ? Suggested answers are as follows.

Part of the educational value of outdoor work lies in its peculiar opportunities for training children to think and to discriminate. Under classroom conditions the preliminary sifting has been done for them, by teacher and text-book. Training in independent self-criticism may not bear fruit quickly (though for that reason it is not less desirable) ; but every experienced teacher knows the difference in quality of the finds, and the questions, offered by children who have had some experience in outdoor work ; and, above all, by children for whom field excursions are a usual part of the school programme. When outdoor work is a novelty, excitement may impede some children's critical faculties. In this connection and with reference to an episode recalled by one speaker, it is tempting to suggest that a lad who, in the course of a field excursion, produces from one pocket some frog-spawn and from another a frog to sit on it, may be displaying—*not* ignorance—but enjoyment of the joke, and typical high spirits. (The life history of the frog is likely to have been studied more than once during his primary school career).

It would be unsound educationally for any teacher to be regarded by his pupils as a compendium of knowledge in all fields. When the matter is of sufficient interest, a question could be referred to the history master, the science master, or another, " who might be able to find out the answer " or perhaps " who might tell us where or how we could find it out ourselves." In this way, field-work can lead to ' integration ' of the best kind, namely, that which arises naturally from the children, and is concerned with something very real to them, and also that which takes place partly in the staff-room. In addition, the children unconsciously catch something of the respect for learning which is another of our wider aims. To a child, as to an advanced student, field-work brings home Professor Whitehead's truism—" God has so made the world that there are more topics desirable for knowledge than any one person can possibly acquire."

Another speaker from the audience emphasised that children should be led to focus attention on one limited line of inquiry during a given excursion. Of course, when the reason for it is clear to the children, this is often desirable. By all means let us train children to select, and to keep to the job on hand. Yet we should also remember that one of the reasons for outdoor work is the very fact that only in the field can a place be seen as a whole, or " in the round " ; and that the extreme difficulty of classification and subdivision is a *fact* which we hope ultimately to teach. We achieve something if the children become aware that the different aspects of " the place " *cannot* be isolated one from another. From that experience an intelligent boy or girl may learn how to regard the subheadings in text-book descriptions of larger areas.

Moreover, there are many occasions when unforeseen opportunities arise. An expedition which has for its purpose, say, a study of land-forms, may with profit include spontaneous observation of farming activities in progress at the time. Open-mindedness and breadth of interest are also among the things which are caught rather than taught ; and in these directions the informal atmosphere of a field excursion provides opportunities which every teacher should feel free to use. Sometimes their educational value may be greater and more lasting than the geographical work which is the immediate purpose of the expedition. As one member of the Conference remarked—" We don't want to put the children in blinkers when we take them out."

O. Garnett.

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GEOGRAPHICAL ASSOCIATION

ANNUAL REPORT, 1950

The year 1950 must be recorded as a landmark in the history of the Association for it has seen the transference of the library and offices from a home in Manchester that has served us well since 1930, to new quarters in Sheffield, regarding which report is made elsewhere. Removals are, at best, uncomfortable times for all concerned, and we are deeply grateful to our members for their tolerance and forbearance over delays, losses and minor mishaps during the process of settling into new quarters and initiating a new staff into the mysteries of our activities. A special word of gratitude is due to our very loyal members of staff in Manchester—Mrs. Mann and Miss Goodwin—who supervised the irksome work of packing and dismantling in Manchester, and the reinstatement in Sheffield. Order has at last emerged out of chaos and plans are now under way to widen the uses of the new quarters. The costs for removal and installation have been considerable, but we have been able to meet these from our accumulated Reserve Fund, and the Jubilee Fund, created to meet this need, remains untouched, ready to meet any other future emergency of the kind that may arise in years to come.

With deep regret, we record the deaths, during the year, of two very old friends. Dr. Hugh Robert Mill was all but a founder member, his active interest in the Association dating back to its very first committee meeting, held in 1893. More than 30 years ago Mr. Ellis Heaton was already a leading figure, often acting as deputy Chairman of Council in the direction of our affairs.

The work of the officers during a somewhat trying year has been greatly aided by the wise counsel of our distinguished President, Professor Dudley Stamp. We are grateful to him for the close attention which he gave to many problems connected with the removal. His help has indeed been invaluable at a critical juncture in the Association's history. We remember also with gratitude the happy demonstration of his gifts of oratory as he paid tribute so effectively to the City of Sheffield at the opening ceremonies and his very generous hospitality during these meetings.

It is a delight to all to welcome as President for 1951 one of our senior officers ; Mr. Leonard Brooks, a longstanding and outstanding friend of the Association, needs no introduction. He has held high office in a distinguished career devoted to the cause of geography teaching, and we are proud to welcome him in this new capacity.

The passage of time inevitably brings younger members to the deliberations of Council and Executive Committee meetings, but we have sorely missed some older and senior friends who have been kept away by sickness and other reasons. It was with very special pleasure, therefore, that those members who attended the opening ceremonies in Sheffield were able to meet Professor and Mrs. Fleure ; and we have been delighted to see Mr. Fairgrieve again, at meetings of the Executive Committee. Recently the Honorary Secretary has received letters from our old and valued friend, Sir John Myers, who though now unable to join us, continues to take an active personal interest in our affairs. Mr. T. C. Warrington, veteran amongst us, still continues his work for the Association with unabated vigour and undaunted by the trans-Pennine journey which his supervision of the library now involves.

Membership of the Association during the year reflects a continuation of the uncertainties of the past few years. Our numbers are 2,944 (with 588 student members) as compared with 3,417 and 634 respectively, in 1949. We urge members to do all in their power to encourage new members to join us, to support the work of the Association in its many educational spheres of influence.

An encouraging feature at headquarters has been the increasing number of enquiries that have come from teachers of geography in many parts of the world, seeking help or advice in matters of common interest. The Executive Committee has decided that the time is ripe for the organisation of an international conference of teachers of geography and plans are being made for this to be held at Sheffield during the summer of 1951. We hope that as many members as possible will avail themselves of this opportunity of meeting and discussing teaching problems with colleagues from other countries.

The Spring Conference held in Falmouth was appreciated by a large gathering of members and we are much indebted to the committee for the excellent arrangements made on our behalf. We look forward equally with keen anticipation to the forthcoming conference to be held at Hull in 1951.

Forty-eight local branches have operated over the country as a whole. Conditions vary locally, some branches report great vigour and a large local membership; others are less fortunately placed. We congratulate many branches on their numerous activities and would draw attention especially to such praiseworthy enterprise as has been shown by the members of the Bristol branch, who have written and are circulating to schools in the district local geographical handbooks at a very nominal cost; or of the Medway Towns branch, who organised a successful local public exhibition and series of accompanying lectures. There is much to be said for more frequent joint meetings of neighbouring branches for the interchange of ideas, and it is pleasing to read in branch reports of numerous meetings of this kind. It is now possible for some distant branches to arrange for a joint meeting to be held at the new headquarters in Sheffield, if due notice is given to our office. A warm welcome is extended to widely separated branches who might like to make contact with each other in this way.

The work of our Section and Standing Committees and Executive Committee of Council has continued unabated. Apart from routine business, the Executive Committee has been occupied with problems concerned with the maintenance of facilities for field studies; the widening of international and national contacts, and special publications. We had hoped to publish the first of a series of research monographs, but at present the scheme is too costly. At the request of the Executive Committee two of its members have drafted a memorandum on the Teaching of Geography in the Secondary Modern School, which, it is hoped, will go to press shortly. It is hoped that other points of view regarding what is bound to be a vexed question may be received in due course by the Honorary Editor and published as additional statements on this important subject.

Considerable and increasing difficulties have been experienced in the course of the year over matters concerned with printing, and it is all but impossible to keep to publication dates, try as one may. The Honorary Editor and Honorary Secretary have this awkward matter continually under review and are endeavouring so to reshape the entire policy and programme of work connected with the publication of *Geography* that a more regular appearance of our journal may be effected. Printing disputes and rising costs have not eased the position. The despatch of our journal direct from the printers to members has also been associated this year with increased losses in the post, though these still amount to only about 0·4% of the circulation of *Geography*. To members who have been inconvenienced in this way, we offer, however, our very sincere apologies.

The *Secondary Schools Section Committee* reports considerable grogress in the study of atlases for pupils between the ages of 11 and 15 years in grammar and modern schools and in 1951 it is hoped to set out precisely what the committee feels are the requirements of the school atlas. Some data have been collected on the kind of books required in modern school libraries and as "background" reading for grammar schools. Lists are being prepared of the textbooks in common use in Secondary Modern Schools.

The *Training College Section* has again held three highly successful one day conferences. A research sub-committee is actively at work on an investigation of children's reactions to geographical pictures.

The *Primary Schools Section* reports meetings held for the discussion of recent publications in primary school geography, local studies, and weather records in primary schools.

The *Standing Committee for Visual Aids* has met monthly for work concerned with film strip reviews, the publication of a pamphlet on the making of geography teaching films, the preparation of a pamphlet on film strips and of a memorandum on the planning and equipment of a geography room. The latter, it is hoped, will be of value to the Ministry in providing guidance to architects, local authorities, and teachers, who are concerned with the building or refitting of schools, and will be published in due course in *Geography*.

The pioneer pilot-surveys made by the *Standing Committee on Urban Spheres* are now on exhibition.

In association with these ever-widening activities the work of our office gains in stature year by year, and, in addition, the daily miscellany of routine enquiries, made by members and others, keeps our staff very busy.

Increasing costs and rising salaries and wages are a continual source of anxiety. We welcome, therefore, with especial gratitude, the bequest made to us by the will of the late Dr. H. R. Mill. This is a precedent that we warmly commend to our members, even though, individually, it can be followed only in very modest measure. Many small bricks in due course make possible the building of a great edifice.

We express, finally, our thanks to our many friends who have given generously of their time in service on numerous committees and Council: and especially may we mention our retiring members of Council, Mr. Ellis, Mr. Garrett, Mr. Smyth and Mr. Smailes. A warm tribute is due to Professor Beaver, who, on his appointment to the Chair of Geography at the University College of North Staffordshire, relinquishes the arduous office of Honorary Conference Organiser, which he has held for many years. We welcome his successor, Mr. Balchin, of Kings' College, London, who is already in harness in our midst. Grateful thanks are due also to Mr. Horrocks, who in Manchester is giving invaluable help as our Ordnance Survey maps officer. To Dr. Spate, a valued member of both Council and the executive committee, we temper our regrets on his resignation with warm thanks for past help and best wishes for his future career in the new National University of Australia at Canberra.

Alice Garnett, *Hon. Secretary.*

THE ANNUAL CONFERENCE, JANUARY, 1951

The Annual Conference, held at the London School of Economics, by kind permission of the Director, was well attended, despite the inclement weather.

The programme covered a variety of subjects. Professor Darby gave a lucid summary of his researches on the Clearing of the English Woodland, which we hope to publish in *Geography* at an early date. Lectures by Dr. Mead, on Pioneer Farming in Finland, and by Miss Campbell, on the Maori People To-day, gave members an opportunity of hearing first-hand accounts by both speakers. The value of Local Geography was evident in the well-illustrated lecture by Mr. Dobson on the Pyrenean valley of Aspe, and in the joint discussion by Professor Wooldridge, Dr. Briault and Mr. Suggate (and under the chairmanship of Mr. Thurston) on Techniques in Field Studies; a large audience was entranced by the magnificant photographs in colour, in stills and moving films, shown by Dr. Bryan, and depicting field work by his students at Dale Fort, Pembrokeshire. Geographical method was under review in some meetings; an admirable summary of his research was given by Mr. Honeybone, who spoke on research in methods of using pictures in the classroom; to Mr. Heaton we are indebted for an immense amount of effort made in preparing a demonstration and leading a discussion on the Equipment of a Model Geography Room. We were disappointed that one of the British delegates (Miss Broadhurst) was unable to attend to report on the Unesco International Seminar for the Teaching of Geography for International Understanding, but Miss Howells and Miss Phillips gave accounts of some of the points of view expressed in Canada last summer.

This programme of varied interests was concluded by a masterly presidential address entitled "Neglected Aspects of Geography," delivered by Professor Dudley Stamp. This was made the occasion of a joint meeting with the Institute of British Geographers and the Royal Geographical Society, and was held at the Society's house.

We are immensely grateful to the Council of the Royal Geographical Society for the lavish hospitality once more extended to us; to the Westminster branch for continuing its time honoured hospitality in the provision of tea at the London School of Economics on the first day of the meetings, and to the Non-Metropolitan branches and members for the institution of a new venture whereby hospitality at tea is returned on the second day of the meeting.

Friday, January 5th, was devoted wholly to two excursions which proved to be very popular and which we hope to repeat on a future occasion. One, under the leadership of Mr. Grimes, Director of the London Museum, gave members an opportunity of seeing recent excavations of Roman and Medieval London. The other included a tour of the Royal Botanic Gardens at Kew under the guidance of the distinguished Director, Sir Edward Salisbury.

The Annual Dinner was very well attended and provided a happy occasion for the meeting of friends—old and new—and was notable for the presence once again of our longstanding friends, Mr. James Fairgrieve and Mr. Ernest Young.

To our new Honorary Conference Organiser, Mr. Balchin, we must extend a warm vote of thanks, and our congratulations on a success in organising the conference and publishers' exhibition that augurs well for future years of office. To the many speakers who contributed to the programme, we take this opportunity of expressing our deep indebtedness and sincere thanks.

SUBSCRIPTIONS RATES AND THE NEW FINANCIAL YEAR

At the Annual General Meeting the proposed alteration in the Statutes whereby the financial year begins on September 1st instead of January 1st was read for a second time and approved. The next financial year will, therefore, begin on September 1st, 1951.

The Annual General Meeting agreed *nemine contradicente* that in connection with this change the subscription of 12/6 paid on, or due on, January 1st, 1951, is to be regarded as covering the period to 31st August, 1951, when a new subscription of 12/6 will become due, but that if individual members desire, and make application to headquarters, they will be entitled to a refund of 2/6 in respect of 1951 (less postage and cost of postal order). In view of the financial difficulties associated with rising costs the executive committee will be very grateful if members will not reclaim this amount, technically due to them.

GEOGRAPHICAL MAGAZINE

Arrangements have now been completed whereby the *Geographical Magazine* may be purchased by members of the Association at the special reduced rate of 21/– per annum, a saving of 6/–. Applications should be made to Mr. D. Knott, *The Geographical Magazine*, 40–42, William IV Street, London, W.C.2, for a special form of application.

Publication Dates

The Honorary Editor tendered in the December number his sincere apologies for the late appearance of the September and December issues of *Geography*. At the time that his note went to press (November 14th) there was good ground to hope that the December issue would be in members' hands before the Annual Conference. That hope not only proved vain but delivery of the bulk of the copies was delayed an additional week by an error for which our printers have made a full apology.

For the future we have our printers' assurances that a strict time schedule will be adhered to and the programme of editorial work has been arranged to permit publication of issues in *March*, *May*, *July* and *November*, 1951, in each case in the middle of the month. In 1952 and thereafter publication will occur in *January*, *April*, *July and November*. These arrangements, which have the approval of the executive committee, are designed to give the best fit with the Association's annual programme and with the school and academic year.

Corrections—December, 1950

Mr. H. Thorpe has drawn our attention to two minor errors which occurred in his article on "Aspects of Rural Settlement in County Durham." On p. 251, line 23, "hamleet" should be "hamlet," and on p. 252, line 30, after Pennine read "Spurs outside the coal-mining belt and the upper valley side of".

The attention of members is also directed to the erratum slip supplied with this issue and carrying certain corrections to the index. These arose because certain items already in page-proof and included in the index had to be omitted by the printer.

Library

Work on reclassification of the library and revision of the card catalogue has been proceeding during the winter. The classification and notation published by the Association of American Geographers (A.A.A.G., June, 1937), suitably modified, are being applied to the Association's book collection. The printing of a new catalogue will follow on completion of the reclassification. Meantime, books will be available on loan and members' enquiries about the availability of books will be welcomed. In the arduous task of revising the catalogue and commencing work on the reclassification, the Association is extremely grateful to Miss J. I. Platts, B.A., who has freely given her time and energy since November, 1950.

According to the new classification the lists of articles in Magazines received will now be presented in a revised order. Readers are reminded that offprints of these lists are available, price 6d. each ; orders should be placed at Headquarters for the current year as early as possible.

EXHIBITION OF TEXTBOOKS AND OTHER MATERIAL

An exhibition of geography textbooks for all age ranges, and of other teaching material, was successfully held in the Library from February 16th–28th, publicity being circulated to Local Education Authorities and Association Branches within reach of Sheffield. Over 300 books were available for examination ; wall pictures, atlases and film-strips were on display. The Sheffield Branch held a special meeting at Headquarters on February 23rd to examine the exhibition and exchange comments and several score other visitors, including some school children and parents, evidently found the exhibition of interest.

B.B.C. SCHOOLS BROADCASTS

The Education Officers of the B.B.C. are at present reviewing the needs of schools, especially Primary and Secondary Modern Schools, in the matter of geography broadcasts. The Honorary Secretary will be glad to receive as soon as possible from any members who have used school broadcasts in their teaching, comments and criticisms (favourable or unfavourable) and suggestions. These will be forwarded to the appropriate quarters.

ANNUAL CONFERENCE TEAS

At the meeting of Council held in January, it was agreed that a Fund should be created into which members and branches could make donations, for the provision of a tea at the Annual Conference in London, by members other than those associated with the hospitality for so long offered by the Westminster branch. We are grateful to the branches and members who contributed to this, prior to the last Annual Meeting, when a sum of £8/10/– was raised. The cost of the tea is £12. If this venture is to be repeated next year, we shall need to collect £15/10/– for the tea and to meet the deficit on the present year's expenses. We are confident that non-metropolitan members will wish to match the generous hospitality that has for so long been given by the London branches, and which they propose to continue, and we ask, therefore, that individual members and branches will subscribe as they may from time to time feel able, to build up a fund to meet this annual charge.

DANISH TOUR

The Danish Council are considering the possibility of organising a special tour for members of the Historical and Geographical Associations in the course of the summer of 1951. If any members of the Association are interested in such a project would he or she please communicate with the Assistant Secretary (Miss Oughton) at headquarters, enclosing a stamped envelope for a reply.

ROYAL NORWEGIAN GOVERNMENT SCHOLARSHIPS

Professor Fridtjov Isachsen, of the Geografiske Institutt in the University of Oslo wishes us to draw the attention of British students of geography to the fact that the Norwegian Government now offers four scholarships, tenable for a year, to British students of any subject. Interviews in connection with these scholarships are arranged by the British Council, and advertisements of them appear in the educational press. It was as holder of one of these scholarships that Miss Joan M. Clegg, author of the article on " The Teaching of Geography in Norwegian Grammar Schools " which appeared in our December, 1950, issue, was enabled to pursue her agricultural and fishery studies in Norway in 1949–50 and to visit Norwegian schools and study teaching methods. In this connection she would like us to record her gratitude to the Norwegian Government who made her visit to Norway possible and to the teachers of Oslo who so greatly facilitated her study of Norwegian teaching methods.

PAPERS BY SIR HALFORD MACKINDER

Readers of the most valuable and stimulating article by Mr. E. W. Gilbert on the teaching of Sir Halford Mackinder which we print in this issue under the title " Seven Lamps of Geography " will naturally wish to turn from it to Mackinder's own writings. Some of these are readily accessible, but two of his most important and influential papers are now difficult to obtain. " The Scope and Methods of Geography" was published in the *Proceedings of the Royal Geographical Society* in 1887 and "The Geographical Pivot of History" in the *Geographical Journal* for 1904. It is, therefore, most opportune that the Royal Geographical Society has just issued a reprint of these two papers with an introductory Essay by Mr. Gilbert. Copies of this 44-page pamphlet may be obtained direct from the Society, price 2/6.

Information About Aluminium

We have received from the Educational Service of the Aluminium Development Association the first of a series of wall charts and teachers' notes giving valuable information regarding the aluminium production from the ore to the metal. This Association offers a wide range of teaching aids and services including technical literature, specimens of raw materials and alloys, wall charts, photographs, films, lantern slides, library facilities and lectures, and teachers who are interested should request further information from the Aluminium Development Association, at 33, Grosvenor Street, London, W.1.

Imperial Institute—"Stories of Empire Products"

Four new stories have recently been added to the Imperial Institute's very useful series of "Stories of Empire Products." These thumb-nail sketches are written in non-technical language and run to about 2,000 words; they constitute brief accounts of where the various products are found, how they are processed or fabricated and what they are used for. Each story contains a page of illustrations which can be thrown on a screen with an epidiascope, while the accompanying text is used as the basis of a lecture or school lesson.

The first of the new stories, number XIX of the series, deals with African diamonds both as gem stones and for industrial purposes. Asbestos from Southern Rhodesia is the subject of the next, and there are illustrations of some of the 200 uses of this unique material.

The story of the Golden Fleece tells how Australia's flocks of sheep have grown from the original 29 animals that arrived with the "First Fleet" in 1788, to some 100,000,000 or more to-day, while, during the same period, the weight of a single fleece has been approximately trebled. The word "worsted" we learn is derived from the village of Worstead, in Norfolk, where many Flemish weavers settled in the reign of Henry I, after disastrous floods had driven them from their own country.

The last of the new stories deals with oil from North Borneo, where 3,500,000 tons of crude oil are produced every year from depths up to 6,900 feet. A diagrammatic section through a "fractionating tower," in which petrol, kerosene, diesel oil, and other petroleum products are separated from each other, shows very graphically what actually happens in a modern oil refinery.

These and the previous 18 stories are on sale for 2d. each at the Imperial Institute's Publication Stand.

THE LE PLAY SOCIETY

SUMMER

Rural Life and Agriculture in Fife and Perthshire. Headquarters: St. Regulus Hall, University of ST. ANDREWS with Sir E. John Russell and Miss Margaret Tatton, August 15th to 31st.

SWITZERLAND: with Prof. S. H. Beaver and Dr. Toni Hagen, August 8th to 24th.

BRITTANY: Morbihan District: Studies in Archaeology and Physical Geography, September 6th to 19th.

UNIVERSITY STUDENTS' meeting: NORWAY: with Mr. T. H. Elkins and Miss A. M. Coleman, August 11th to 28th.

For full details write: Miss Margaret Tatton, Director, The Birlings, Birling Gap, Nr. Eastbourne, Sussex.

REVIEWS OF BOOKS

MEMBERS of the Library should know that, with very rare exceptions, books reviewed in this journal may be borrowed from the Association's library. The review columns are, therefore, supplements to the catalogue.

Dartmouth. Percy Russell. 13·3 × 22·5 cm. vii + 184 pp. London: B. T. Batsford, Ltd. 1950. 18/–.

This is a scholarly book, beautifully illustrated and of absorbing interest to the student of local history. The author has drawn upon a wealth of documentary records to produce an unusually complete and connected narrative of the town. To a geographer he gives the impression that he is more interested in the records than the place, and if the book has a serious fault, it is that Dartmouth is not placed in its geographical setting, either in relation to Devon or to the Channel. Nevertheless certain things are clearly revealed, e.g., that Dartmouth is a Channel haven rather than a Devon seaport, for its links with its hinterland were most inadequate. It experienced three main periods of prosperity; first as a Channel haven for the Plantaganet Empire trade with south-west France; secondly as a principal centre for the Newfoundland fisheries and exchange with Iberia; and thirdly as a wine port in the 18th century. Its decline during the Civil Wars and Restoration reflects the economic distress of most of the country in the latter half of the 17th century.

The photographs and reproductions of old paintings add to the charm and interest of this valuable historical study. A.D.

Turf Beneath My Feet. Garry Hogg. 13·7 × 22·2 cm. 250 pp. London: Museum Press, Ltd. 1950. 15/–.

This is an account of people met and places seen on a walking tour in the west of Ireland. The author began his travels at Bantry, Co. Cork, and made his way northwards to Killarney by way of Glengarriff, the Healy Pass and Kenmare with a pause at Killorglin to see the Puck fair which transforms this town into a scene of intense activity for three days in the year. Mr. Hogg was not impressed by Killarney but he seems to have missed the most interesting part of the region by turning back when he was half-way through the Gap of Dunloe. The Dingle peninsula was next visited and the remains of various pre-historic and early Christian settlements described. From Dingle the reader is carried rapidly through County Limerick to the cliffs of Moher in Clare and to the fascinating limestone country of the Burren which deserves more than the single page allocated to it. Connemara and Achill Island later provided a contrast to Kerry not only in the landscape but also in the inhabitants who were, on the whole, much less friendly than those farther south. The tour ended in Donegal and there is a good description of the view from the impressive promontory of Horn Head.

Mr. Hogg's comments on what he saw are interesting if sometimes superficial and his observations are not always accurate, especially on geological matters. He is at his best in describing particular scenes or incidents on his journey: a salesman in action at the Puck fair, or his first view of the cliffs of Moher. The book lacks unity, but, provided it is not taken too seriously, it makes interesting reading and the photographs, presumably by the author, are excellent. J.P.H.

The Middle Sea. L. G. Pine. 14·3 × 22·1 cm. xiv + 222 pp. London: Edward Stanford, Ltd. 1950. 18/6.

"The grand object of travelling is to see the shores of the Mediterranean." Mr. Pine has been lucky enough to follow this advice of Dr. Johnson which he quotes. But to travel and to see is not in itself sufficient equipment for writing a book, particularly on an area which has engaged for so long the close attention of specialists of many kinds. This book aims "to bring the Mediterranean into the proper perspective for those who visit it on business or pleasure." If such visitors are unexacting in their reading requirements, this book may interest them. If they already have some acquaintance with the Mediterranean and its history, they will wisely select from many better based texts.

Mr. Pine's book is a light and unsystematic narrative of Mediterranean history from its beginnings, interlarded with descriptions of places visited and of personal encounters. His historical works of reference are ill-assorted and his writing tends to the colloquial. There are 17 good photographic plates, mostly of famous buildings, which bring the Mediterranean and its past vividly to mind, but the maps are the familiar maps of the historical atlas. Mr. Pine's geography is jejune and at times boldly imaginative. Really he should not waste time telling business men that the Suez Canal is " an artificial channel," nor should he speculate on the origin of the Mediterranean Sea in terms of the Great Ice Age and of Noah's Flood without taking the trouble to acquaint himself with current scientific opinion. It is remarkable that among the various sources to which Mr. Pine directs the reader's attention—the *Encyclopaedia Britannica*, the works of J. B. Bury (first-rate history) and a novel of Robert Graves, he includes not a geographical text. This book reflects little credit on either author or publisher. W.G.E.

Soviet Imperialism. E. D. Carman. 16 × 24 cm. 175 pp. Washington, D.C.: Public Affairs Press. 1950. $3·25.

This is a clearly written and informative study of Soviet territorial expansion during the decade 1939–49, and for readers concerned with the study of current affairs should help to deepen their understanding of the post-war international situations alike in Asia and in Europe. It is a pity that the author, whose specialism is international affairs, did not include maps to show, as only maps can vividly show, the significance of the present boundaries of the Soviet Union and its satellites. More reference would seem desirable than is given to the trade exchanges between Germany and the U.S.S.R. under the Nazi-Soviet Pact of of 1939, and Mackinder's Heartland ideas, although referred to, are not critically discussed as they deserve to be. There is an occasional touch of *naïveté* such as one expects when America surveys the Old World. When Mr. Carman suggests (p. 6) that " there has been no advancement by the attempted destruction of one class by another or of one race by another," he appears to have forgotten how the American Indians fared before the relentless advance of the White colonists of his own country. But he is sound on his facts, and his book is readable and interesting. W.G.E.

This Was Singapore. R. C. McKie. 13·7 × 22 cm. 222 pp. London: Robert Hale, Ltd. 1950. 12/6.

This is a book by an Australian journalist who lived and worked in Singapore from the end of 1937 to September 1939, and comprises 26 chapters, each of which is a story in itself. Thus the reader is given a glimpse, in turn, of a number of Singapore's famous—and infamous—quarters and haunts and introduced to a succession of personalities, some of whom are typical of one or another of the various communities which went to make up the city's pre-war cosmopolitan population, others of whom are merely colourful or eccentric individuals.

The author certainly fulfils the publisher's statement that he is " a descriptive writer of unusual power " but as he is catering for the popular market there is little, if anything, for the geographer as such to comment upon. However, *This Was Singapore* may be recommended as a revealing, if somewhat depressing and sordid, picture of the city on the eve of the last war.

On p. 31 " at right " is an obvious misprint for " at night." The book is illustrated but contains no maps. A.V.W.

Die wissenschaftliche Aufgabe der modernen Geographie. J. Sölch. (Offprint from the *Almanach der Osterreichischen Akademie der Wissenschaften*, 1948). 12 × 19 cm. 20 pp. Vienna. 1949.

This address, delivered by the doyen of Austrian geographers to a non-specialist audience, is an interesting indication of contemporary Austrian ideas on the nature and significance of geography.

Here is a short and moderate, but closely packed statement of the position of geography to-day, prefaced by a very brief survey of its historical development, and particularly concerned with the problem of the relation of geography to the natural sciences. The field of geography is shared with other sciences—geology, botany, meteorology, etc.—and geography has no exclusive corner of the universe to study; nor is it possible to find a peculiarly geographical method. Professor

Sölch's solution to this problem is that the exclusive contribution of geography to natural science is the region ' To discover the distinctive regions (Länder) of the earth and the cause of their differences, that is the scientific task of geography.' He goes on to deal with related matters :—the impossibility of excluding man from among the factors determining the regions ; the genetic and classifying, rather than purely descriptive and statistical, nature of modern geography ; finally (and here his suggestion is rather more novel) the necessary preoccupation of geography with the processes of change, making it also dynamic and historical, as well as static and genetic.

It is interesting to compare this lecture with other recent pronouncements, for example Professor Wooldridge's confession of faith in the primary importance of regional geography in his presidential address to the Institute of British Geographers (1950), or with Professor Baulig's reiteration of the importance of synthesis in geography (leading inevitably to the recognition of the regional study as the principal goal of the subject) contained in his address ' La géographie est-elle une science ? ' (*Annales de Géographie.* Vol. lvii, 1948, pp. 1–11).

In recent years British geographers have almost unanimously seized on the synthetic nature of geographical study, as shown especially in regional geography, and have acclaimed this as the particular contribution that the subject has to offer (c.f. Prof. Taylor's presidential address to Section E of the British Association 1947). There is always, however, a danger of overstressing a truth when it becomes almost universally accepted. Both Prof. Sölch's and Prof. Baulig's lectures contain hints that it is not enough to worship at the shrine of regional geography. ' The goal,' says the former, ' remains a natural division of the whole earth. That is the task of general geography . . .' Prof. Baulig quotes an interesting passage from Vidal de la Blache pointing out that no portion of the earth can be understood in isolation and that the interplay of local conditions can be clearly perceived (i.e. the geographical synthesis can be achieved) only if the observer can rise above the local scale and consider them in the light of analogies from other regions and as examples of general laws or tendencies. It is significant that the great *Géographie Universelle*, the highlight of French regional geography, has culminated in a final volume on France which is divided into two parts, physical and human, by different authors. " La *Géographie Universelle*," says Prof. Cholley, " avait commencé sous le signe de la géographie régionale ; c'est sous celui de la géographie générale qu'elle se termine." A.F.M.

A Regional Economic Geography. S. N. Dicken. 19 × 27 cms. ix + 516 pp. London : George G. Harrap. 1950. 25/–.

Professor Dicken's new Regional Economic Geography is an excellent specimen of the best type of contemporary American University textbook. It is beautifully produced, lavishly illustrated both with maps and with extremely good and well-chosen photographs, and it contains useful appendices on the classification of climates (Köppen) and of soils. In all these respects it does not differ strikingly from a number of other recent publications covering essentially the same ground and, to quote from the preface, " whatever originality the author can claim lies in the arrangement and method of presentation of the material."

In fact the lay-out of the book is rather unusual but by no means unsuccessful. After a series of brief introductory chapters, all of the major production regions, e.g. the softwood forest region, the wheat belts and dairying regions, etc., of North America are described in turn, each being followed by a chapter on the analogous regions in other parts of the world. In this way, interesting and useful comparisons are brought out, and it is possible to illustrate with unusual clarity the relative importance of environmental and human factors in the world pattern of economic distributions. Regions with no true counterpart in North America, e.g. the monsoon lands and the inter-tropical belt generally, receive full treatment in later chapters, and the book ends with a somewhat less detailed examination of the major industrial centres and world trade.

While inevitably the European reader is bound to be somewhat disconcerted, alike by the emphasis on primary production and by the minimisation of such vital components as economic nationalism and political fragmentation implicit in this treatment, and indeed in the whole atmosphere of the book, it must be conceded that from the most strictly geographical point of view the method is abundantly justified. Certainly it would be difficult to think of a more stimulating or more up-to-date basic textbook for first-year University students, and many other more advanced readers will find much to interest them in this welcome addition to the literature of economic geography. C.A.F.

Sixth-Form Citizens. Report of the Schools' Committee of the Association for Education in Citizenship. 12 × 19 cm. xv + 287 pp. London : Oxford University Press. 1950. 10/6.

This is the report of an enquiry into the social content of sixth-form curricula by a committee which was largely composed of headmasters and headmistresses. Material had been compiled from personal visits and questionnaires by James Hemming, the Research Officer of the Association for Education in Citizenship.

In 1947 the number of candidates who took the Higher Schools' Certificate was double that in 1938. To-day, therefore, the sixth-form is no longer the privilege of the few but the common experience of the intellectually most able children. Sixth-form work is built on a basis of specialisation. Hemming found that in many schools the curriculum was too specialised and narrow. In others, however, a balance was maintained between the sciences and the arts where science specialists take English, a language and religious knowledge, and the arts specialists take mathematics or biology. A different approach is seen in those schools which provide the same scheme of general background studies for all sixth-form students. There follow a couple of chapters dealing first with the indirect and then with the direct approach to social education. In the indirect approach through the use of discussions in the English, history and geography lessons much may be learnt of civics, clear thinking or current affairs. In the direct approach economics, politics, psychology, philosophy are included in the sixth-form course although up to 1948 only economics or politics were examined at the H.S.C. stage. In spite of the bogy of examinations and the pressure of homework, in a minority of schools pupils are shown by lectures on a variety of topics, or by co-ordinated social studies, the best in the thought, religion, literature and art of civilised communities in order that they may select what they need to form personality and to find a philosophy of life. The aim of education is to form right judgments, not to inculcate specific doctrines. Indeed the evidence of the survey is against any dogmatic panaceas for social content in education.

The book includes a chapter on Transfer of Training by Sir Cyril Burt, a comprehensive Social Science Syllabus for Science Specialists ; three Sixth-Form Philosophy courses ; a chapter on approaches to discussion ; one on special courses ; one on Inter-School Sixth-Form Societies ; samples of general papers in some scholarship examinations ; comments from headmasters and headmistresses and opinions of students on their education. Although no sixth-form teacher will agree with everything in the book, none can fail to be stimulated by reading it. E.M.C.

Asia. Modern Geography Series. Book V. W. B. Cornish. 13 × 19·5 cms. viii + 186 pp. London : University Tutorial Press. 1949. 5/–.

This, the fifth of six books for General Certificate (Ordinary) candidates, is an attempt to compress the geography of the largest and most populous of the continents into 180 pages (including 50 maps and diagrams) supplemented by 43 photographs on a dozen interleaved sheets. The book concludes with 75 questions and an index. Within these limitations the author has judiciously allocated space among the sub-divisions of the continent, and among the various aspects of geography. Post-war political and economic considerations have not been omitted, though a note of cautious uncertainty is sounded in references to areas where conditions are still very fluid. Nevertheless, the effects of compression are apparent in the paucity of detailed descriptive passages and in the tendency to catalogue data relating to economic and social life without adequate reference to their physical bases.

Climatological matter may be criticised. In Fig. 9 (Seasonal Rainfall) it is unfortunate that by showing N.W. India as having " little rain at any season " the importance of the small winter rainfall is overlooked. The " St. Lawrence Type " of climate is said to be developed in Northern China, Northern Japan, and Eastern Siberia (p. 20), Korea (" the climate is of the St. Lawrence type, with a very heavy rainfall extending from the middle of July to the end of August," p. 143), and Manchuria (p. 145), whereas this climatic type is characterised by unusually well-distributed precipitation. Pupils may be confused by reading that the rainfall of Cherrapunji is 426 inches (p. 1) and, again, 432 inches (p. 28). What purports to be a statement of Buys-Ballot's Law

(p. 31) is, in fact, the law usually attributed to Ferrel, and the author does not quote Buys-Ballot's Law. On p. 130 Professor Roxby is credited with the authorship of F. H. King's classic "Farmers of Forty Centuries." A typographical error seems to have occurred on p. 113, making it appear that Java averages 200 inches *rainfall* whereas the author seems to have meant to refer to 200 *thunderstorms* a year. A more general criticism is that the illustrations, admirably chosen and reproduced, are not integrated with the text, to which they might have contributed some of the reality that it lacks.

In general, the book appears to provide a concise, up-to-date, and informative study of Asia that will meet the needs of grammar school pupils. C.L.H.

REVIEWS OF FILM-STRIPS

BY THE VISUAL AIDS COMMITTEE.

The Middle East—Strip 1 : Natural Background.

Educational Productions, Ltd.
Teachers' notes available.

Description : The region covered by this film-strip is limited to the lands lying within Asia. Position and Topography, Climate, Rivers and Drainage, Vegetation and Malaria are dealt with here, leaving the main features of social and economic geography for a second strip.

Physically, the region is divided into two main structural areas, the folded zone of the north and the faulted desert plateau of the south, with a gently folded belt between. These broad divisions are shown on maps, particular features being illustrated by pictures. Climate is dealt with by means of an annual rainfall map, isotherm maps for July (mean daily maximum) and January (mean daily minimum), two climatic charts, and views showing contrasting weather conditions. Drainage and vegetation are dealt with by views, following a key map in each case ; the section on malaria consists of two distributional maps and a picture of a mosquito-breeding lake.

Assessment : The viewers feel that the strip only partially justifies the statement in an introductory note that it "is suitable for secondary school children preparing for a public examination at 16 ; and also, with the omission of some detail on the maps, for secondary pupils who are making a general study of the region." Unless there had been some previous study of the physical divisions and climate, a disproportionate amount of time would need to be spent in studying the maps and graphs included in the strip. The rapid alternations of maps, graphs and views, especially in the first two sections, give a disjointed character, especially as the arrangement is none too well planned—for example, the map showing the "recession" (why not "advance ?") of the Tigris-Euphrates mouth since 3000 B.C. is put in apropos of nothing, and, if needed at all, would be much more appropriate under "Rivers." Some of the diagrams are in themselves open to criticism. On the one showing a year's rainfall day by day, there is no indication of the place to which it refers, while some of the months appear short of days. Another diagram, showing temperature and rainfall of Beirut and Damascus, each compared with London, requires much more explanation than such a graph should. While the quality of many of the views is excellent, there is much variation. The *sakia*, for instance, is completely hidden by the camel which is turning it, while the manner in which the *noria* functions is obscure. In two other pictorial illustrations, the photographic quality is so poor and the detail so imperfect as to render them practically useless for their purposes. The last frame of the strip, included under the heading "Malaria," has nothing to do with that subject, and would be much more valuable in the vegetation or the topography section.

In spite of these criticisms of detail—and it is realised that in a region for which there is a very limited amount of pictorial material available—the general arrangement of the sections is suitable for a systematic study. The teaching notes are very full and contain valuable material, much of which is not normally included in text books at the stage for which this strip is intended.

Wool Industry of Australia.

Gaumont British Instructional Film Strip.
Captions but no teaching notes.

Description : This strip tells the story of wool production and transport in Australia. The first frame shows a map of the chief wool producing areas of the world; the second a map showing the distribution of sheep in Australia juxtaposed with a complicated map showing rain, temperature and pasture. The 20 pictures which follow mainly illustrate processes in rearing and shearing, and in transport.

Assessment: The photography is excellent, and the general impression is that the strip is attractive and interesting. Apart from the maps it would be eminently suitable for the ages 9–12, but many older classes would also profit from it. Lesson notes are not provided and indeed are hardly necessary for the strip tells its story plainly. But the information is agricultural and economic rather than geographical, for the relationship with the physical background is not clearly revealed. The pictures do not lend themselves easily to intellectual study, nor are there many obvious conclusions to draw, but certain essential facts are presented in a form in which they are likely to be remembered.

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Geographical Articles in Magazines Received

CONTINUED FROM VOL. XXXV, pp. 207 and 208.

A of Sc.—Advancement of Science. BE—Bulletin de la Société Royale de Géographie d'Egypte. CGR—Calcutta Geog. Review. EG—Economic Geography. GA—Geografiska Annaler. GJ—Geographical Journal. GR—Geographical Review. GSI—Bulletin of Geographical Society of Ireland. GV—Geografski Vestnik (Ljubljana). IA—International Affairs. J of G—Journal of Geography. NG—New Zealand Geographer. PGA—Proceedings of the Geologists' Association. PGR—Pakistan Geog. Review. RCG—Révue Canadienne de Géographie. SGM—Scottish Geographical Magazine. TPR—Town Planning Review. (E)—English Summary. (F)—French Summary. *—Map.

GENERAL GEOGRAPHY. H. C. CAMERON, GJ, Sept., '50.—Failure of the Philosophers to sail with Cook. L. A. KRATZ, J of G, Sept., '50.—Geography and Municipal Bond Analysis. L. M. WANTLAND, J of G, Sept., '50.—Geography is vital to the Business Student. S. VAN VALKENBURG, EG, Jan., '50.—World Land Use Survey.

MATHEMATICAL GEOGRAPHY. J of G, Oct., '50.—List of Articles on Maps, 1922–1949. E. LYNAM, GJ, Sept., '50.—English Maps and Mapmakers, 16th Cent. K. TANAKA, GR, July, '50.—Relief Contour Methods of Representing Topography.

PHYSICAL GEOGRAPHY. H. BAULIG, GA, '49. Causalité et Finalité en Géomorphologie. P. BIAYS, RCG, '49.—Problèmes de glaciation et de nivation. F. HJULSTRÖM, GA, '49.—Climatic changes and river patterns. J. LEIGHLY, GA, '49.—Continentality and glaciation. W. V. LEWIS, GA, '49.—Glacial movement by rotational slipping. G. LUNDQVIST, GA, '49.—Orientation of block material in certain species of flow earth. C. M. MANNERFELT, GA, '49.—Marginal drainage channels. E. de MARTONNE, GA, '49.—Dyssymetrie des glaciations régionales. J. ROUSSEAU, RCG, '49.—Modification de la surface de la Toundra. G. SELIGMAN, GA, '49.—Research on glacier flow. S. THORARINSSEN, GA, '49.—Teprochronological contributions to volcanology and glaciology in Iceland. W. WERENSKIOLD, GA, '49.—Glacier measurements in Jotunheim. J. D. H. WISEMAN, PGA, Mar., '50.—Recent Investigations on the Deep Sea Floor.

CLIMATE. A. ÅNGSTROM, GA, '49.—Atmospheric circulation, climatic variation and continentality of climate. C. E. P. BROOKS, GA, '49.—Post-glacial climatic change; recent glaciological research. A. DAVIES, SGM, June, '50.—Climatic Regions and Climatic Numbers. I. HUSTICH, GA, '49.—Correlation between growth and recent climatic fluctuation. S. PETTERSSEN, GA, '49.—Changes in general circulation. D. J. SCHOVE, SGM, June, '50.—Tree-rings and summer temperatures. H. C. WILLETT, GA, '49.—Solar Variability—factor in climatic fluctuations.

HUMAN GEOGRAPHY. H. J. FLEURE, BE, June, '50.—Some environmental factors and features of Mediterranean Civilization. H. V. HODSON, IA, July, '50.—Race relations in the Commonwealth. S. A. HUZAYYIN, BE, June, '50.—Origins of Neolithic life in Egypt.

SETTLEMENT. H. FRANKFORT, TPR, July, '50.—Town planning in ancient Mesopotamia. G. W. HARTMAN, EG, Oct., '50.—Central Business District; study in urban geography. M. POËTE, TPR, July, '50.—Urban Development.

ECONOMIC GEOGRAPHY. J. W. ALEXANDER. J, of G, Oct., '50—Geography of Manufacturing. H. HATCHER, J of G, Sept., '50.—Conservation, an immediate concern to all nations. E. E. KESO and H. SELF, EG, Oct., '49.—The Magnesium Industry. C. KNOX, EG, April, '49.—Coal, Oil and Water Power as Fuels. E. W. MILLER, EG, April, '50.—Aspects of the mineral position of eight principal industrial nations.

TEACHING. J of G, Oct., '50.—List of Articles on Maps and their Use in Geographic Education, 1922–1949. RCG, Jan., '50.—Bibliographie sur l'enseignement de la géographie. G. AUMONT, RCG, Jan., '50.—Géographie dans l'enseignement secondaire au Canada Français. C. O. FITZWATER, J of G, Sept., '50.—Common Goals for Rural Education and geographers. H. VENT, J of G, Sept., '50.—Changing attitudes with different methods of teaching geography. A. WARRINGTON, J of G, Sept., '50.—Economic Geography Lecture Material.

BRITISH ISLES. T. H. BAINBRIDGE, EG, April, '49.—Population changes over W. Cumberland coalfield. G. D. BANKS, SGM, Sept., '50.—Hydro-electric development in the Highlands. K. M. BUCHANAN, EG, Oct., '48.—Modern farming in Vale of Evesham. J. W. COULTER, EG, April, '49.—Stock Farming in Eire. T. W. FREEMAN, GSI, '49.—Town and District of Carrick-on-Shannon. T. W. FREEMAN, GSI, '50.—Town and District of Roscommon. G. E. FUSSELL, EG, Oct., '48.—High Farming in the North of England, 1840–80. G. E. FUSSELL, EG, July, '49.—High Farming in W. Midland Counties, 1840–80. F. H. W. GREEN, GJ, Sept., '50.—Urban hinterlands in England and Wales ; analysis of 'Bus services.* H. T. HOUGH, TPR, Oct., '50.—Liverpool Corporate Estate. A. T. A. LEARMONTH, SGM, Sept., '50.—Population of Skye. G. MANLEY, GA, '49.—Snowline in Britain. R. A. MOORE, SGM, June, '50.—Scottish Coal. J. OTWAY-RUTHVEN, GSI, '50.—Place-names in Ireland. M. J. PROUDFOOT, EG, April, '50.—Isle of Mull. F. M. SYNGE, GSI, '49.—Kilmacanogue Valley, Co. Wicklow. L. E. TAVENER, EG, Oct., '50.—Port of Southampton. K. WALTON, SGM, June, '50.—Distribution of Population in Aberdeenshire, 1696. S. W. WOOLDRIDGE, A of Sc., Sept., '50.—Upland Plains of Britain, Origin and Geographical significance.

EUROPE. L. ARNBORG, GA, '48.—Delta of Ångermanälven. P. BIAYS, RCG, Jan., '50.—Les Lapons, leurs genres de vie, spécialement en Norvège. R. E. BIRCHAND, EG, Oct., '48.—Europe's Critical Food Situation. W. O. BLANCHARD, J of G, Sept., '50.—World's Greatest Inland Sea, the Mediterranean. J. A. BRADLEY, EG, July, '49.—Rehabilitation of Transportation in Germany. A. CASTELLI, GA, '48.—La vallée de l'Ångermanälven, esquisse de géomorphologie. E. ČERČEK, GV, '48–'49.—Vie Pastorale dans les Alpes de Kamnik (F). J. CHARDONNET, BE, June, '50.—Coté Française de Marseille à Menton. J. A. COKER, SGM, Sept., '50.—Tourism and the Peasant in the Grisons. B. HEDENSTIERNA, GA, '48.—Stockholms Skärgård (in Swedish). J. M. HOUSTON, GJ, Sept., '50.—Irrigation as a solution to agrarian problems in modern Spain. S. ILEŠIČ, GV, '48–'49.—L'habitat rural dans le Littoral Slovène (F). F. KOLARIČ, GV, '48–'49.—Haloze, a survey of Dežno and Gorca (E). G. H. LILJIQUIST, GA, '49.—Fluctuations of summer mean temperatures in Sweden. D. L. LINTON, GSI, '49.—Unglaciated areas in Scandinavia and Great Britain. V. MANOHIN, GV, '48–'49.—Climat de Ljubljana, 1933–47 (F). V. MELIK, GV, '48–'49.—Development and Structure of Inhabited places as Admin. and Statistical units in Slovenia (E). A. MELIK, GV, '48–'49.—Slovene Carinthia (E). O. REYA, GV, '48–'49.—Intensité des précipitations dans le Littoral Slovène (F). A. SCHOU, GA, '49.—Danish coastal cliffs in glacial deposits. A. ŠERKO, GV, '48–'49.—Škocjan Basin near Rakek (E). J. SÖLCH, GA, '49.—Über die Schwemmkegel der Alpen. J. F. TRIFUNOSKI, GV, '48–'49.—Types d'habitat rural dans le Polog (N. W. Macedonia) (F). C. C. WALLÉN, GA, '49.—Shrinkage of the Kårsa Glacier. G. G. WEIGEND, GR, July, '50.—Effects of Boundary Changes in S. Tyrol.

ASIA. N. AHMAD, EG, July, '50.—Industrial Development in E. Bengal. N. AHMAD, PGR, '49.—Planning problems in E. Bengal. A. CUTSHALL, EG, Jan., '49.—Urban settlement in Hokkaido. P. DAYAL, CGR, Mar., '50.—Distribution of cattle and problem of fodder supply in Bihar. F. J. FOWLER, GR, Oct., '50.—Problems of water distribution between East and West Punjab. E. GAGE, EG, July, '50.—Industrial development in Formosa. S. GHOSH, EG, Jan., '50.—Urban pattern of Calcutta. N. S. GINSBURG, EG, July, '48.—Ch'ing-Tao: development and land utilization. B. GOULD, IA, Jan., '50.—Tibet and her neighbours. M. N. JEN, EG, July, '48.—Agricultural landscape of S.W. China. W. KIRK, GR, July, '50.—Damodar Valley—Valles Prima. R. LAHIRI, CGR, Mar., '50.—Land Utilization near Jasidih, Deoghar. S. McCUNE, EG, July, '49.—Sequence of plantation agriculture in Ceylon. F. B. MAHMUD, PGR, '49.—Cotton-growing in W. Pakistan. P. A. MOTT, GJ, Sept., '50.—Karakoram Survey, 1939; a New Map*. S. M. NAQVI, PGR, '49.—Coefficient of Variability of Monsoon Rainfall in India and Pakistan. E. J. RUSSELL, IA, July, 50.—Asia's Food Problems. S. SINHA, CGR, Mar., '50.—Village in Singbhum. G. P. STEVENS, EG, July, '49.—Saudi Arabia's Petroleum Resources. G. T. TREWARTHA, GR, July, '50.—Land reform and reclamation in Japan. E. de VAUMAS, BE, June, '50.—Structure du Proche-Orient. R. O. WHYTE, GR, Oct., '50.—Phytogeographical zones of Palestine.

AFRICA. K. BUCHANAN and N. HURWITZ, GR, July, '50.—'Coloured' community in Union of South Africa. E. S. MUNGER, GR, Oct., '50.—Water problems of Kitui District, Kenya. E. NILSSON, GA, '49.—Pluvial of E. Africa. P. SCOTT, EG, July, '50.—Mineral development in Swaziland. C. TROLL and K. WIEN, GA, '49.—Lewisgletscher am Mt. Kenya. E. B. WORTHINGTON, GJ, Sept., '50.—Geography and Development of E. Africa.

NORTH AMERICA. W. C. BAILEY, EG, April, '50.—Typology of Arizona Communities. A. G. BALLERT, EG, April, '49.—Turn-around on a Great Lakes Freighter. R. BLANCHARD, RCG, Jan., '50.—Montreal, Esquisse de Géographie Urbaine. R. BLANCHARD, GA, '49.—Problème du Témiscamingue. P. CAMU, RCG, '49.—Traffic on Upper St. Lawrence River. H. J. CRITCHFIELD, EG, July, '48.—Land-use levels in Boundary Co. Idaho. H. J. CRITCHFIELD, EG, Oct., '49.—Seward Peninsula. S. de R. DIETTRICH, EG, Jan., '49.—Florida's Climatic Extremes. A. H. DOERR, J of G, Oct., '50. Chicago's Coal; origin, movement to market and use. L. DURAND and E. T. BIRD, EG, Oct., '50.—Burley Tobacco Region of the Mountain South. F. C. ERICKSON, EG, Oct., '48.—Broken Cotton Belt. E. F. FISHER, J of G, Oct., '50.—Alaska and the Alaska Highway. R. F. FLINT, GA, '49.—Pleistocene drainage diversions in S. Dakota. F. K. HARE, GR, Oct., '50.—Climatic and zonal divisions of Boreal Forest formation in E. Canada. W. ISARD and J. H. CUMBERLAND, EG, Oct., '50.—New England as possible location for an integrated iron and steel works. R. L. IVES, EG, Jan., '49.—Resources of Dugway Area, Utah. C. W. JOHNSON, EG, July, '48.—Relative decline of wheat in Prairie Provinces of Canada. G. J. KLEIN, GA, '49.—Canadian survey of physical characteristics of snow covers. C. McCARTHY, TPR, July, '50.—T.V.A. and the Tennessee Valley. J. R. MACKAY, RCG, '49.—Physiography of lower Ottawa Valley. E. MATHER, EG, April, '50.—Production and Marketing of Wyoming Beef Cattle. E. E. MILLER and R. M. HIGHSMITH, EG, Oct., '49.—Geography of Fruit Industry of Yakima Valley, Washington. A. A. MUNN, EG, July, '50.—Production and utilization of Soybean in U.S. J. J. PARSONS, EG, July, '50.—Geography of Natural Gas in U.S. M. C. PRUNTY, EG, Oct., '50.—Soybeans in Lower Mississippi Valley. H. L. SMITH, EG, July, '49.—Agricultural Land Use in Iowa. L. B. THOMAS, EG, Jan., '50.—Development of Chula Vista, California. L. F. THOMAS, EG, April, '49.—Decline of St. Louis as Midwest Metropolis. J. A. TOWER, EG, Jan., '50.—Cotton change in Alabama, 1879–1946. H. J. WARMAN, EG, Jan., '48.—Population of Manor Counties, Maryland.

LATIN AMERICA. M. I. FLETCHER, EG, Jan., '49.—Balsa Industry of Ecuador. D. J. GARRISON, EG, Jan., '50.—Reclamation project of Papaloapan R. Basin, Mexico. L. T. HEARN, J of G, Sept., '50.—Geographic Study of Cotocollao, Ecuador. F. L. KELLER, EG, Jan., '50.—Finca Ingavi, a Medieval survival on Bolivian Altiplano. M. S. SOMMERS, EG, Jan., '49.—Wheat producing areas in Peru. R. H. STANLEY, J of G, Oct., '50.—Mexican Pueblo in transition. L. WAIBEL, GR, Oct., '50.—European Colonization in S. Brazil.

AUSTRALIA AND NEW ZEALAND. K. B. CUMBERLAND, NG, April, '50.—Land Despoiled; New Zealand about 1838. K. B. CUMBERLAND, SGM, June, '50.—New Zealand and the S. Pacific. G. LEWTHWAITE, NG, April, '50.—Population of Aotearoa, number and distribution. G. TAYLOR, GR, Oct., '50.—Hobart to Darwin: an Australian traverse. L. F. WITHERS, NG, April, '50.—Development of Hydro-electric Power in New Zealand.

OCEANS. R. A. FALLA, NG, April, '50.—Chatham Islands. J. N. WILSON, EG, Oct., '48.—Pineapple Industry of Hawaii.

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